

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.95  
Test oil : ISO 4113  
Combination No. : 0 400 866 184  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV425...900A4C2213  
: -4R  
Governor no. : 0 420 233 325

Cust. part No. : 3921160

Customer-spec. information  
Customer : CDC  
Motor : 6 CT 8.3  
Power KW : 154.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 10.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 830

Rack travel in mm : 13.45

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 139.5
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cm3/1000 strokes	: ± 1.0
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Check tolerance cm3/1000S.	: ± 3.0
<hr/>	
Speed cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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GUIDE SLEEVE POSITION

Rated speed rpm	: 800
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Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 830
Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 139.5
cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Speed cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

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CONTROL LEVER

control lever position degree	: 102.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.40
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Rated speed rpm	: 930
Tolerance 1/min	: ± 5
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rack travel mm	: 4.00
Rated speed rpm	: 975
Tolerance 1/min	: ± 5
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rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1030
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rack travel mm	: 4.00
Rated speed rpm	: 975

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LOW IDLE

control lever position degree	: 76.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 4.70

Testing:

Rated speed rpm	: 425
rack travel mm	: 5.60
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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TORQUE CONTROL

Rated speed rpm	: 830
rack travel mm	: 13.45
Tolerance mm	: ± 0.05

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BREAKAWAY

Rack travel in mm	: 12.40
Rated speed rpm	: 930
Tolerance 1/min	: ± 5

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  15.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 866 188  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV425...750A4C2213  
Governor no. : 0 420 233 326

Cust. part No. : 3921152

Customer-spec. information  
Customer : CDC  
Motor : 6CT- 8.3 L  
Power KW : 135.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 017

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 10.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Del. quantity  
cm3/1000 strokes : 143.5  
cm3/1000 strokes : ± 1.0



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Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

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Speed  
cm<sup>3</sup>/1000 strokes : 4.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

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Rack travel in mm : 6.10  
Tolerance mm : + 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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#### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

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#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.5  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

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#### CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 800  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 840  
Tolerance 1/min : + 5

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

rack travel mm : 4.00  
Rated speed rpm : 845

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#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 5.60

#### Testing:

Rated speed rpm : 425  
rack travel mm : 6.10  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

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#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 800  
Tolerance 1/min : + 5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : + 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 15.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.96  
Test oil : ISO 4113

Combination No. : 0 400 866 190

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...1250A0C2216  
: -5R  
Governor no. : 0 420 233 327

Cust. part No. : 3921144

Customer-spec. information  
Customer : CDC  
Motor : 6 CT 8.3 ltr  
Power KW : 160.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

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Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.05

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.00

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Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1390  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1450

rack travel mm : 4.00  
Rated speed rpm : 1395

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.00

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.95  
Test oil : ISO 4113

Combination No. : 0 400 866 204

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...1100A0C2190  
: -76R  
Governor no. : 0 420 233 315

Cust. part No. : 3921163

Customer-spec. information  
Customer : CDC  
Motor : 6 CT 8.3ltr  
Power KW : 173.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.75

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.70  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1245

##### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 5.20

##### Testing:

Rated speed rpm : 425  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

##### BREAKAWAY

Rack travel in mm : 9.70  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  15.0

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End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.96  
Test oil : ISO 4113  
  
Combination No. : 0 400 866 208  
  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
  
Governor  
Governor design. : RSV400...1100AOC2190  
                  : -80R  
Governor no. : 0 420 233 319

Cust. part No. : 3921140

Customer-spec. information  
Customer : CDC  
Motor : 6 CT 8.3  
Power KW : 156.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 10.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1220

Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1230

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 4.80

##### Testing:

Rated speed rpm : 425  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

##### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  5

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.95  
Test oil : ISO 4113  
  
Combination No. : 0 400 866 212  
  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -4  
EP type number : 9 410 230 030  
  
Governor  
Governor design. : RSV450...1100A0C2190  
: -82R  
Governor no. : 0 420 233 321  
  
Cust. part No. : 3931268

Customer-spec. information  
Customer : CDC  
Motor : 6CT830  
Power KW : 117.1

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014

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Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery blocking  
  
°NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 10.65

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 450

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  6.0

##### RATED SPEED

rack travel mm : 9.60  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1235  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1325

rack travel mm : 4.00  
Rated speed rpm : 1245

##### LOW IDLE

control lever  
position degree : 84.0  
tolerance degree :  $\pm$  6.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 450  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.60  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.09.95  
Test oil : ISO 4113  
Combination No. : 0 400 876 394  
Injection pump  
Pump designation : PES6A100D410RS2754  
EP type number : 0 410 806 002

Governor  
Governor design. : RSV425...1100AOC2234  
: -2L  
Governor no. : 0 420 232 569

Cust. part No. : RE51026

Customer-spec. information  
Customer : DEERE  
Motor : 6076TRW04  
Power KW : 122.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 13.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 7.00

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.65  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

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Spread  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.60  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1205

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 425  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05



Rated speed rpm : 700  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity

cm<sup>3</sup>/1000 strokes : 126.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.60

Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm<sup>3</sup>/1000 strokes : 110.0

cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 425

Del. quantity

cm<sup>3</sup>/1000 strokes : 28.0

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.03.96  
Test oil : ISO 4113

Combination No. : 0 400 876 395

Injection pump  
Pump designation : PES6A100D410RS2676  
EP type number : 9 410 230 023

Governor  
Governor design. : RSV425...1100A2C2161  
: -1L  
Governor no. : 9 420 234 133

Cust. part No. : RE23746

---

Customer-spec. information  
Customer : DEERE  
Motor : 6466T  
Power KW : 120.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

\*NW after s.o.d. : 15.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

Difference ° CS : 8.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 8.40  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1210  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1210

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 4.90

##### Testing:

Rated speed rpm : 425  
rack travel mm : 5.40  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.40  
Tolerance mm : ± 0.05

Rated speed rpm : 750

rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 175  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 80  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

---

##### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 8.40  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 425  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.10.95  
Test oil : ISO 4113  
Combination No. : 0 400 876 424  
Injection pump  
Pump designation : PES6A100D410RS2762  
: -1  
EP type number : 0 410 806 008  
Governor  
Governor design. : RSV425...1050A2C2277  
: L  
Governor no. : 0 420 232 601  
Cust. part No. : RE62035

Customer-spec. information  
Customer : DEERE  
Motor : 6076TRW-30  
Power KW : 129.5

## TEST BENCH REQUIREMENTS

Inlet line : 2.4  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 457 413 010  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
°NW after s.o.d. : 13.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 11.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.70

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 26.0

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

governor spring

pre-tension

click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 106.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever

position degree : 94.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.15

Rated speed rpm : 1100

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1170

Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1300

rack travel mm : 4.00

Rated speed rpm : 1170

##### LOW IDLE

control lever

position degree : 72.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 425

rack travel mm : 5.20

Testing:

Rated speed rpm : 425

rack travel mm : 5.70

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 11.20

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750

rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.15  
Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 425  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 876 429  
Injection pump  
Pump designation : PES6A95D320LS2853  
EP type number : 0 410 896 891  
Governor  
Governor design. : RSV415...1100A5C2276  
: -2R  
Governor no. : 0 420 233 347  
Cust. part No. : 1824775C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-466  
Power KW : 119.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 058  
Inlet press. bar : 2.8  
Test nozzle holde  
assembly : 1 688 901 110  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5



Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rack travel in mm : 5.60  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5  
rack travel mm : 4.00  
Rated speed rpm : 1210  
Tolerance 1/min : ± 5  
rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1275  
rack travel mm : 4.00  
Rated speed rpm : 1215

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415  
rack travel mm : 5.60  
Tolerance mm : ± 0.10  
Rated speed rpm : 100  
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.35  
Tolerance mm : ± 0.05  
Rated speed rpm : 800  
rack travel mm : 14.00  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.00  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 330  
rack travel mm : 13.50  
Tolerance mm : ± 0.20  
Pressure hPa : 200  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.5  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 046 857  
Injection pump  
Pump designation : PES6P110A32OLS3330  
EP type number : 0 412 016 745  
Governor  
Governor design. : RQV350...1250PA1126K  
Governor no. : 0 421 815 383

Cust. part No. : 1823106C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-408  
Power KW : 142.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 076  
Inlet press. bar : 2.8  
Tolerance bar : ± 0.1  
Test nozzle holde assembly : 1 688 901 101  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 15.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.95  
Tolerance mm : ± 0.05

Del. quantity cm<sup>3</sup>/1000 strokes : 128.5

cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 7.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.5  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 6.0

##### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

##### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : + 6.0

##### Testing:

Rated speed rpm : 325  
rack travel mm : 7.70  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 8.50

Rated speed rpm : 405

---

##### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.95  
Tolerance mm : + 0.05

Rated speed rpm : 1150  
rack travel mm : 13.70  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 12.60  
Tolerance mm : + 0.20

Rated speed rpm : 1250  
rack travel mm : 13.80  
Tolerance mm : + 0.20

---

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 13.80  
Tolerance mm : + 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 530  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 250  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  280

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1310

B05

Tolerance 1/min :  $\pm$  15

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

#### LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.96  
Test oil : ISO 4113

Combination No. : 0 402 066 710

Injection pump  
Pump designation : PES6P110A120RS3357  
EP type number : 0 412 016 754

Governor  
Governor design. : RSV400...900P4A633  
Governor no. : 0 421 833 541

Cust. part No. : 3931255

Customer-spec. information  
Customer : CDC  
Motor : 6CTA ELITE  
Power KW : 207.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.35  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 213.0

cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Speed  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm3/1000 strokes : 24.0  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Speed  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 213.0  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Speed  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 960  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.40  
Rated speed rpm : 990  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

rack travel mm : 6.40  
Rated speed rpm : 990

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.70

##### Testing:

Rated speed rpm : 400  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 100

CRT mm min. : < 19.00

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

# BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 960  
Tolerance 1/min :  $\pm$  5

---

# STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

# LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113

Combination No. : 0 402 076 756

Injection pump  
Pump designation : PES6P100A320LS3317  
EP type number : 0 412 006 706

Governor  
Governor design. : RSV400...1200P5A587  
Governor no. : 0 421 833 446

Cust. part No. : 1820269C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DTA-466  
Power KW : 204.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.65  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 176.5

cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
cm3/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.20  
Tolerance mm : ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.60  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5  
rack travel mm : 4.00  
Rated speed rpm : 1315  
Tolerance 1/min : ± 5  
rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1400  
rack travel mm : 4.00  
Rated speed rpm : 1320

##### LOW IDLE

control lever  
position degree : 25.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.20  
Tolerance mm : ± 0.10  
Rated speed rpm : 100  
CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 14.65  
Tolerance mm : ± 0.05

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1200  
Pressure hPa : 1500  
rack travel mm : 14.65  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.40  
Tolerance mm : ± 0.20

Rated speed rpm : 1200

Pressure hPa : 650  
rack travel mm : 13.20  
Tolerance mm : ± 0.20

Pressure hPa : 240  
rack travel mm : 9.55  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113

Combination No. : 0 402 076 757

Injection pump  
Pump designation : PES6P100A320LS3319  
EP type number : 0 412 006 707

Governor  
Governor design. : RSV350...1300P5A565  
Governor no. : 0 421 833 414

Cust. part No. : 1820268C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-408  
Power KW : 141.5

## TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Overflow quantity  
min. l/h : 260  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

---

Spread  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.60  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1405

Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1500

rack travel mm : 4.00  
Rated speed rpm : 1410

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1300  
Pressure hPa : 1200  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.30  
Tolerance mm : ± 0.20

Rated speed rpm : 1300

Pressure hPa : 650  
rack travel mm : 11.50  
Tolerance mm : ± 0.20

Pressure hPa : 290  
rack travel mm : 9.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113

Combination No. : 0 402 076 760

Injection pump  
Pump designation : PES6P100A320LS3317  
EP type number : 0 412 006 706

Governor  
Governor design. : RSV415...1100P8A577  
Governor no. : 0 421 833 433

Cust. part No. : 1818694C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-531  
Power KW : 145.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.30  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 4.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 52.0  
tolerance degree : ± 4.0  
control lever  
position degree : 102.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.40  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5  
rack travel mm : 4.00  
Rated speed rpm : 1200

Tolerance 1/min : ± 5  
rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1205

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 6.0  
control lever  
position degree : 21.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 415  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.60  
Tolerance mm : ± 0.20  
Rated speed rpm : 500



Pressure hPa : 480  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 240  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.40  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 761  
Injection pump  
Pump designation : PES6P100A320LS3317  
EP type number : 0 412 006 706  
Governor  
Governor design. : RSV415...1100P8A576  
Governor no. : 0 421 833 432

Cust. part No. : 1817593C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-531  
Power KW : 161.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.35  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 151.0

cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
cm3/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.30  
Tolerance mm : ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
  
governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 51.0  
tolerance degree : ± 4.0  
  
control lever  
position degree : 101.0  
tolerance degree : ± 6.0

##### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5  
  
rack travel mm : 4.00  
Rated speed rpm : 1195

Tolerance 1/min : ± 5  
  
rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1200

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 6.0  
  
control lever  
position degree : 22.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 415  
rack travel mm : 5.30  
Tolerance mm : ± 0.10  
  
Rated speed rpm : 100  
  
CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.35  
Tolerance mm : ± 0.05

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 13.35  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.60  
Tolerance mm : ± 0.20  
  
Rated speed rpm : 1100

Pressure hPa : 540  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 250  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 763  
Injection pump  
Pump designation : PES6P100A32OLS3317  
EP type number : 0 412 006 706  
Governor  
Governor design. : RSV415...1100P8A579  
Governor no. : 0 421 833 435

Cust. part No. : 1822012C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-466  
Power KW : 134.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 076  
Inlet press. bar : 2.8  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.40  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOV VOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
  
governor spring  
pre-tension  
click setting x : 5.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree : ± 4.0  
  
control lever  
position degree : 105.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 1160  
Tolerance 1/min : ± 5  
  
rack travel mm : 4.00  
Rated speed rpm : 1195

Tolerance 1/min : ± 5  
  
rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1200

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 6.0

control lever  
position degree : 24.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 415  
rack travel mm : 5.40  
Tolerance mm : ± 0.10  
  
Rated speed rpm : 100  
  
CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.90  
Tolerance mm : ± 0.20  
  
Rated speed rpm : 1100

Pressure hPa : 440  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 240  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113

Combination No. : 0 402 076 769

Injection pump  
Pump designation : PES6P100A320LS3319  
EP type number : 0 412 006 707

Governor  
Governor design. : RSV350...1300P5A588  
Governor no. : 0 421 833 448

Cust. part No. : 1820888C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-408  
Power KW : 171.5

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Overflow quantity  
min. l/h : 260  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0



---

Spreed	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

---

Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 3.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure hPa	: 1200
Del. quantity cm <sup>3</sup> /1000 strokes	: 149.5
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spreed cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

---

##### CONTROL LEVER

control lever position degree	: 111.0
tolerance degree	: ± 6.0

##### RATED SPEED

rack travel mm	: 12.00
Rated speed rpm	: 1345
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1405

Tolerance 1/min	: ± 5
rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1500

rack travel mm	: 4.00
Rated speed rpm	: 1410

---

##### LOW IDLE

control lever position degree	: 71.0
tolerance degree	: ± 6.0

##### Testing:

Rated speed rpm	: 350
rack travel mm	: 5.60
Tolerance mm	: ± 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00

---

##### TORQUE CONTROL

Rated speed rpm	: 1300
rack travel mm	: 13.05
Tolerance mm	: ± 0.05

---

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm	: 1300
Pressure hPa	: 1200
rack travel mm	: 13.05
Tolerance mm	: ± 0.05

##### MEASUREMENT

Pressure hPa	: -
Rated speed rpm	: 500
rack travel mm	: 8.30
Tolerance mm	: ± 0.20

Rated speed rpm	: 1300
-----------------	--------

Pressure hPa	: 710
rack travel mm	: 11.80
Tolerance mm	: ± 0.20

Pressure hPa : 320  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 076 770  
  
Injection pump  
Pump designation : PES6P110A320LS3318  
: -1  
EP type number : 0 412 016 749  
  
Governor  
Governor design. : RSV350...750P4A561  
: -1  
Governor no. : 0 421 833 451  
  
Cust. part No. : 1823837C92

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-531  
Power KW : 224.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 076  
  
Inlet press. bar : 2.8  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1 680 750 015

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Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 650  
  
Rack travel in mm : 12.55  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.5  
  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Speed

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 340

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 35.0

cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650

Aneroid pressure

hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 225.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever

position degree : 47.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.20

Rated speed rpm : 750

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 800

Tolerance 1/min : ± 5

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 900

rack travel mm : 4.00

Rated speed rpm : 805

##### LOW IDLE

control lever

position degree : 26.0

tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 340

rack travel mm : 5.20

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 650

rack travel mm : 12.55

Tolerance mm : ± 0.05

##### BREAKAWAY

Rack travel in mm : 10.20

Rated speed rpm : 750

Tolerance 1/min : ± 5

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 340  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113

Combination No. : 0 402 076 772

Injection pump  
Pump designation : PES6P100A320LS3342  
EP type number : 0 412 006 710

Governor  
Governor design. : RSV415...1100P8A593  
Governor no. : 0 421 833 456

Cust. part No. : 1823921C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-466  
Power KW : 135.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spread  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.50  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 10.20  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5  
rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : ± 5  
rack travel mm : 0.85  
Tolerance mm : ± 0.55

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Rated speed rpm : 1300  
rack travel mm : 4.00  
Rated speed rpm : 1195

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415  
rack travel mm : 5.50  
Tolerance mm : ± 0.10  
Rated speed rpm : 100  
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.20  
Tolerance mm : ± 0.05  
Rated speed rpm : 800  
rack travel mm : 12.35  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.35  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 420  
rack travel mm : 11.50  
Tolerance mm : ± 0.20  
Pressure hPa : 210  
rack travel mm : 9.70  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.20  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113

Combination No. : 0 402 076 773

Injection pump  
Pump designation : PES6P100A320LS3342  
EP type number : 0 412 006 710

Governor  
Governor design. : RSV415...1100P8A595  
Governor no. : 0 421 833 461

Cust. part No. : 1824625C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-530  
Power KW : 168.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree :  $\pm$  6.0

RATED SPEED

rack travel mm : 11.40  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1205

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  6.0

Testing:

Rated speed rpm : 415  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 510  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 250  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.40  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 774  
Injection pump  
Pump designation : PES6P100A320LS3342  
EP type number : 0 412 006 710  
Governor  
Governor design. : RSV415...1100P8A596  
Governor no. : 0 421 833 462

Cust. part No. : 1824624C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-530  
Power KW : 187.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 109.0

cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
cm3/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.20  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 105.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5  
rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 5  
rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1300  
rack travel mm : 4.00  
Rated speed rpm : 1205

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm : ± 0.05  
Rated speed rpm : 800  
rack travel mm : 12.50  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : 1200  
rack travel mm : 12.50  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 800  
Pressure hPa : 445  
rack travel mm : 11.40  
Tolerance mm : ± 0.20  
Pressure hPa : 230  
rack travel mm : 9.50  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.5  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 775  
Injection pump  
Pump designation : PES6P100A320LS3342  
EP type number : 0 412 006 710  
Governor  
Governor design. : RSV415...1100P8A597  
Governor no. : 0 421 833 463

Cust. part No. : 1824626C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-530  
Power KW : 153.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 076  
Inlet press. bar : 2.8  
Tolerance bar : + 0.1  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0

Prestroke mm : 3.00  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.5

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.60  
Tolerance mm : ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 4.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree : ± 6.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5  
rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 5  
rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1300  
rack travel mm : 4.00  
Rated speed rpm : 1205

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 6.0

##### Testing:

Rated speed rpm : 415  
rack travel mm : 5.60  
Tolerance mm : ± 0.10  
Rated speed rpm : 100  
CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm : ± 0.05  
Rated speed rpm : 800  
rack travel mm : 12.50  
Tolerance mm : ± 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 800  
Pressure hPa : 1200  
rack travel mm : 12.55  
Tolerance mm : ± 0.10

##### MEASUREMENT

Rated speed rpm : 800  
Pressure hPa : 435  
rack travel mm : 11.60  
Tolerance mm : ± 0.20  
Pressure hPa : 250  
rack travel mm : 10.05  
Tolerance mm : ± 0.05



---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.96  
Test oil : ISO 4113

Combination No. : 0 402 736 813

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0 412 716 805

Governor  
Governor design. : RQV350...1100PA964  
: -5K  
Governor no. : 0 421 815 257

Cust. part No. : 3921772

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 187.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## Start of delivery blocking

°NW before FB : 5.50  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.23

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55  
Tolerance mm : + 0.05

Del. quantity  
cm3/1000 strokes : 187.5

cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Speed

cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 30.0  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 5.0  
Spreed  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.90  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 8.20  
Tolerance mm : + 0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.30  
Tolerance mm : + 0.20

Rated speed rpm : 600  
guide sleeve  
travel mm : 5.30  
Tolerance mm : + 0.20

Rated speed rpm : 1200  
guide sleeve  
travel mm : 9.80  
Tolerance mm : + 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 187.5

cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spreed  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 13.50  
Rated speed rpm : 1150  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

Rated speed rpm : 425

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.55  
Tolerance mm : + 0.05

Rated speed rpm : 650  
rack travel mm : 13.60

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 500  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 845  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 335  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  290

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

##### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.11.96  
Test oil : ISO 4113

Combination No. : 0 402 034 700

Injection pump  
Pump designation : PES4P120B120RS3379  
EP type number : 0 412 024 702

Governor  
Governor design. : RQV475...1100PA1314K  
Governor no. : 0 421 815 543

Cust. part No. : 3928601

Customer-spec. information  
Customer : CDC  
Motor : 4BTA-A  
Power KW : 93.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.5

cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.70
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 26.5
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spreed cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 475
guide sleeve travel mm	: 1.59
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1163
guide sleeve travel mm	: 7.66
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 931
guide sleeve travel mm	: 5.89
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 670
guide sleeve travel mm	: 3.53
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1660
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm <sup>3</sup> /1000 strokes	: 140.5
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 113.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.40
Rated speed rpm	: 1155
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 6.70
Rated speed rpm	: 1230
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever position degree	: 70.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 475
rack travel mm	: 5.70
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 400
CRT mm min.	: > 6.80
Rated speed rpm	: 550

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 550  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 765  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  415

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  425

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 19.11.96

Test oil : ISO 4113

Combination No. : 0 402 736 913

## Injection pump

Pump designation : PES6P120A120RS7369

EP type number : 0 412 726 935

## Governor

Governer design. : RQV400...1400PA1211

: -1K

Governer no. : 0 421 815 530

Cust. part No. : 3931538

## Customer-spec. information

Customer : CDC

Motor : 68TA-A

Power KW : 160.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Test nozzle holde

assembly : 1 688 901 103

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 12.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 6.75

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.45

Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	180.0
cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 4.0
Spreed cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	13.0
Rated speed rpm	:	420
Rack travel in mm	:	6.10
Tolerance mm	:	+ 0.20
Del. quantity cm3/1000 strokes	:	16.5
cm3/1000 strokes	:	+ 3.0
Check tolerance cm3/1000S.	:	+ 5.0
Spreed cm3/1000 strokes	:	3.0
Check tolerance cm3/1000S.	:	7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	400
guide sleeve travel mm	:	2.01
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1410
guide sleeve travel mm	:	8.73
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1488
guide sleeve travel mm	:	9.53
Tolerance mm	:	+ 0.25
Rated speed rpm	:	462
guide sleeve travel mm	:	2.91
Tolerance mm	:	+ 0.25
Rated speed rpm	:	512
guide sleeve travel mm	:	3.37

Tolerance mm	:	+ 0.25
Rated speed rpm	:	1000
guide sleeve travel mm	:	5.53
Tolerance mm	:	+ 0.25
Rated speed rpm	:	2130
guide sleeve travel mm	:	13.50
Tolerance mm	:	+ 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1300
Aneroid pressure hPa	:	1500
Del. quantity cm3/1000 strokes	:	180.0
cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 4.0
Spreed cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	13.0

CONTROL LEVER

control lever position degree	:	117.0
tolerance degree	:	+ 6.0

RATED SPEED

rack travel mm	:	13.40
Rated speed rpm	:	1450
Tolerance 1/min	:	+ 25
rack travel mm	:	5.50
Rated speed rpm	:	1650
Tolerance 1/min	:	+ 5
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1850

LOW IDLE

control lever position degree	:	67.0
tolerance degree	:	+ 6.0

Testing:

Rated speed rpm : 420  
rack travel mm : 6.10  
Tolerance mm : + 0.20

Rated speed rpm : 300

CRT mm min. : > 8.70

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.45  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : + 0.20

Rated speed rpm : 1100  
rack travel mm : 13.30  
Tolerance mm : + 0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1300  
Pressure hPa : 1500

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1300  
rack travel mm : 9.50  
Tolerance mm : + 0.20

Rated speed rpm : 1300

Pressure hPa : 965  
rack travel mm : 13.00  
Tolerance mm : + 0.30

Pressure hPa : 390  
rack travel mm : 10.80  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 340

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 350

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.5  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.40  
Rated speed rpm : 1450  
Tolerance 1/min : + 25

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.80  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 25.0

---

#### LOW IDLE

Rated speed rpm : 420  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.11.96  
Test oil : ISO 4113

Combination No. : 0 402 746 615

Injection pump  
Pump designation : PES6P120A320RS7419  
EP type number : 0 412 726 961

Governor  
Governor design. : RGV300...1250PA1289K  
Governor no. : 0 421 815 520

Cust. part No. : 386 6800

Customer-spec. information  
Customer : CDC  
Motor : 6CTA  
Power KW : 249.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 12.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.60  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 203.5
<hr/>	
cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spreed	
cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 300

Rack travel in mm	: 6.35
Tolerance mm	: + 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 32.5
cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 5.0
Spreed	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.29
Tolerance mm	: + 0.20

Rated speed rpm	: 1372
guide sleeve	
travel mm	: 9.86
Tolerance mm	: + 0.15

Rated speed rpm	: 917
guide sleeve	
travel mm	: 6.76
Tolerance mm	: + 0.25

Rated speed rpm	: 590
guide sleeve	
travel mm	: 4.95
Tolerance mm	: + 0.25

Rated speed rpm	: 1710
guide sleeve	
travel mm	: 13.50

Tolerance mm	: + 0.50
--------------	----------

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 203.5
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spreed	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 117.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.60
Rated speed rpm	: 1320
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1470
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1575

LOW IDLE

control lever	
position degree	: 75.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 6.35
Tolerance mm	: + 0.20

Rated speed rpm	: 250
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CRT mm min.	: > 7.80
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Rated speed rpm	: 450
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---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 670  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 385  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.11.96  
Test oil : ISO 4113

Combination No. : 0 402 746 617

Injection pump  
Pump designation : PES6P120A720RS7423  
EP type number : 0 412 726 963

Governor  
Governor design. : RQV325...975PA909  
: -12K  
Governor no. : 0 421 815 531

Cust. part No. : 313GC5224-P10

Customer-spec. information  
Customer : MACK  
Motor : EN7300A  
Power KW : 223.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0



cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0
Rack travel in mm	: 5.30
Tolerance mm	: ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 325
guide sleeve travel mm	: 1.27
Tolerance mm	: ± 0.20

Rated speed rpm	: 1030
guide sleeve travel mm	: 8.84
Tolerance mm	: ± 0.15

Rated speed rpm	: 524
guide sleeve travel mm	: 3.30
Tolerance mm	: ± 0.25

Rated speed rpm	: 390
guide sleeve travel mm	: 2.30
Tolerance mm	: ± 0.25

Rated speed rpm	: 1430
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 975
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 202.0
cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed	

cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 110.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.60
Rated speed rpm	: 1020
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1170
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1250

LOW IDLE

control lever position degree	: 64.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 325
rack travel mm	: 5.30
Tolerance mm	: ± 0.10

Rated speed rpm	: 225
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CRT mm min.	: > 4.80
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Rated speed rpm	: 400
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 975
rack travel mm	: 12.55
Tolerance mm	: ± 0.05

Rated speed rpm	: 600
rack travel mm	: 12.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 500
rack travel mm	: 11.50

Tolerance mm :  $\pm$  0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 975  
Pressure hPa : 1200  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 975  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 975

Pressure hPa : 460  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 235  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  275

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  285

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1020  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  30.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.11.96  
Test oil : ISO 4113

Combination No. : 9 400 030 722

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1100AOC837R  
Governor no. : 9 420 034 707

Cust. part No. : DEP: 3928603

Customer-spec. information  
Customer : CDC  
Motor : CUMMINS-4BTA-3.9  
Power KW : 82.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.15  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.6  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.50  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

rack travel mm : 6.50  
Rated speed rpm : 1225

##### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.65

##### Testing:

Rated speed rpm : 475  
rack travel mm : 6.15  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750

rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 800  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 800

Pressure hPa : 650  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 84.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 11.80  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

D05

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.4  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.6  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.10.96  
Test oil : ISO 4113  
Combination No. : 0 401 856 700  
Injection pump  
Pump designation : PE6P110A721RS3101  
EP type number : 0 411 816 725  
Governor  
Governor design. : RQ300/1200PA412  
Governor no. : 0 421 801 172

Cust. part No. :

Customer-spec. information  
Customer : SNF  
Motor : WD615.67  
Power KW : 206.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.5

Spreed  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 16.00  
Tolerance mm : + 0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure  
hPa : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 40.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 11.00  
Rated speed rpm : 1253  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1340  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 14.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : + 20

Rated speed rpm : 100

CRT mm min. : > 7.50

##### TORQUE CONTROL

Dimension a mm : 0.35  
Rated speed rpm : 1200  
rack travel mm : 12.05  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 12.45  
Tolerance mm : + 0.05

Rated speed rpm : 1075  
rack travel mm : 12.30  
Tolerance mm : + 0.15

Rated speed rpm : 600  
rack travel mm : 12.75

Tolerance mm :  $\pm$  0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 420  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 330  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.15

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1253

D08

Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.96  
Test oil : ISO 4113

Combination No. : 0 401 876 761

Injection pump  
Pump designation : PE6P120B320RS3206  
EP type number : 0 411 826 820

Governor  
Governor design. : RSV250...900P4A657  
Governor no. : 0 421 833 575

Cust. part No. : 3826529 P01 v. 10/96

Customer-spec. information  
Customer : VOLVO-PENTA  
Motor : TAMD122 A  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration  
damper  
(RoBo diaphragm) : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.70  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree : ± 4.0

control lever  
position degree : 112.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 960  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1130

rack travel mm : 4.00  
Rated speed rpm : 1010

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 4.0

control lever  
position degree : 28.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 410  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 700  
Pressure hPa : 1500  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 700  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700

Pressure hPa : 770  
rack travel mm : 2.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 240  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 960  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

---

#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.11.96  
Test oil : ISO 4113

Combination No. : 0 401 876 762

Injection pump  
Pump designation : PE6P120B320RS3206  
EP type number : 0 411 826 820

Governor  
Governor design. : RSV250...900P4A660  
Governor no. : 0 421 833 578

Cust. part No. : 3826532 P01 v.10/96

Customer-spec. information  
Customer : VOLVO-PENTA  
Motor : TMD 122 A (HD)  
Power KW : 235.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration  
damper  
(RoBo diaphragm) : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.70  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.5

cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance cm3/1000S.	: + 4.0
<hr/>	
Spreed cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 250
<hr/>	
Rack travel in mm	: 5.10
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 20.0
cm3/1000 strokes	: + 3.0
Check tolerance cm3/1000S.	: + 6.0
<hr/>	
Spreed cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 6.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: 1000
Del. quantity cm3/1000 strokes	: 213.5
cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 4.0
<hr/>	
Spreed cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

---

CONTROL LEVER

control lever position degree	: 60.0
tolerance degree	: + 4.0

control lever position degree	: 108.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 8.95
Rated speed rpm	: 930
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 980
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1130

rack travel mm	: 4.00
Rated speed rpm	: 990

---

LOW IDLE

control lever position degree	: 79.0
tolerance degree	: + 4.0

control lever position degree	: 31.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 250
rack travel mm	: 4.60

Testing:

Rated speed rpm	: 250
rack travel mm	: 5.10
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 410
Tolerance 1/min	: + 30

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 9.95  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 700  
Pressure hPa : 1000  
rack travel mm : 9.95  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 700  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700

Pressure hPa : 600  
rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 460  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 8.95  
Rated speed rpm : 930  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.50

---

LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96

Test oil : ISO 4113

Combination No. : 0 402 640 845

Injection pump

Pump designation : PE12P120A320LS7896

EP type number : 0 412 620 847

Governor

Governer design. : RQV350...1050PA1306

Governer no. : 0 421 814 179

Cust. part No. : 0270749102

## Customer-spec. information

Customer : MB-NFZ

Motor : OM 444 LA

Power KW : 500.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 170

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8

: - 3- 4- 11- 10

: - 2- 6- 7

Phasing : 0-45-60-105-120

: -165-180-225-240

: -285-300-345

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.10

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 227.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 6.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.48  
Tolerance mm : + 0.20

Rated speed rpm : 1107  
guide sleeve  
travel mm : 8.04  
Tolerance mm : + 0.15

Rated speed rpm : 900  
guide sleeve  
travel mm : 5.69  
Tolerance mm : + 0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.62  
Tolerance mm : + 0.25

Rated speed rpm : 1204  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1300  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1165

Rack travel in mm : 14.10  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.5  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 14.10  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 6.20



Tolerance mm : + 0.10  
 Rated speed rpm : 250  
 CRT mm min. : > 8.50  
 Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 15.10  
 Tolerance mm : + 0.05  
  
 Rated speed rpm : 800  
 rack travel mm : 15.10  
 Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
  
 Pressure hPa : 300  
 rack travel mm : 1.20  
 Tolerance mm : + 0.05  
  
 Pressure hPa : 600  
 rack travel mm : 3.85  
 Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 210  
 Rated speed rpm : < 270  
  
 Check  
 speed 1/min : > 190  
 Check  
 speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1300  
 Rated speed rpm : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 226.0  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0

Speed  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 134.0  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Speed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.10  
 Rated speed rpm : 1095  
 Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 250.0  
 cm<sup>3</sup>/1000 strokes : + 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Speed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



Note remarks

Edition : 04.11.96  
Test oil : ISO 4113

Injection pump  
Pump designation : PE6P120A320RS7230  
: -10Y  
EP type number : 0 412 626 898

Governor  
Governor design. : RQV250...1000PA990K  
Governor no. : 0 421 815 274

Customer-spec. information

Customer : DAF  
Motor : WS 315 L  
Power KW : 315.0

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar :  $\pm$  0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar :  $\pm$  1.5

Test Lines : 1 680 750 089

```

Outside diameter      :      8.0
x inside diameter    :      3.0
x length mm          :     600

```

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm	:	5.05
Tolerance mm	:	+ 0.05
Check		
tolerance mm	:	+ 0.10

Rack travel in mm : 14.50  
Tolerance mm :  $\pm 0.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance \*NW : + 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.55  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.53  
Tolerance mm : + 0.20

Rated speed rpm : 1045  
guide sleeve  
travel mm : 9.82  
Tolerance mm : + 0.15

Rated speed rpm : 689  
guide sleeve  
travel mm : 6.43  
Tolerance mm : + 0.25

Rated speed rpm : 284  
guide sleeve  
travel mm : 2.27  
Tolerance mm : + 0.25

Rated speed rpm : 334  
guide sleeve  
travel mm : 3.08  
Tolerance mm : + 0.25

Rated speed rpm : 400  
guide sleeve  
travel mm : 3.92  
Tolerance mm : + 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 13.50  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 13.55  
Rated speed rpm : 1032  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

---

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

### Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 150

CRT mm min. :  $>$  7.00

### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 760  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350

rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 286.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

### BREAKAWAY

Rack travel in mm : 13.55  
Rated speed rpm : 1032  
Tolerance 1/min :  $\pm$  8

### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96  
Test oil : ISO 4113

Combination No. : 0 402 648 788

Injection pump  
Pump designation : PE8P120A320LS7897  
EP type number : 0 412 628 915

Governor  
Governor design. : RQV350...1050PA1307  
Governor no. : 0 421 814 180

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.35  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	272.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0
Rated speed rpm	:	350

Rack travel in mm	:	5.10
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	20.0
cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 6.0
Spreed cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance cm <sup>3</sup> /1000S.	:	10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	:	350
guide sleeve travel mm	:	1.48
Tolerance mm	:	± 0.20

Rated speed rpm	:	1108
guide sleeve travel mm	:	8.04
Tolerance mm	:	± 0.15

Rated speed rpm	:	900
guide sleeve travel mm	:	5.69
Tolerance mm	:	± 0.25

Rated speed rpm	:	570
guide sleeve travel mm	:	3.57
Tolerance mm	:	± 0.25

Rated speed rpm	:	1204
guide sleeve travel mm	:	10.00

Tolerance mm	:	± 0.25
Rated speed rpm	:	1300
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm	:	1160
Rack travel in mm	:	14.30
Tolerance mm	:	± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1050
Aneroid pressure hPa	:	1800
Del. quantity cm <sup>3</sup> /1000 strokes	:	272.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

##### CONTROL LEVER

control lever position degree	:	121.0
tolerance degree	:	± 4.0

##### RATED SPEED

rack travel mm	:	14.30
Rated speed rpm	:	1095
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1195
Tolerance 1/min	:	± 15

rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	1240

##### LOW IDLE

control lever position degree	:	67.0
----------------------------------	---	------



tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.35  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 15.35  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 290  
rack travel mm : 0.75  
Tolerance mm : + 0.05

Pressure hPa : 660  
rack travel mm : 3.90  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 210  
Rated speed rpm : < 270

Check  
speed 1/min : > 190  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800

Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 14.30  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96  
Test oil : ISO 4113

Combination No. : 0 402 648 978

Injection pump  
Pump designation : PE8P120A320LS7880  
EP type number : 0 412 628 889

Governor  
Governor design. : RQV350...1050PA1180  
Governor no. : 0 421 814 109

Cust. part No. : 0250742502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 638 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350

guide sleeve  
travel mm : 2.14

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1111

guide sleeve  
travel mm : 8.55

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 558

guide sleeve  
travel mm : 4.53

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 608

guide sleeve  
travel mm : 5.03

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 820

guide sleeve

travel mm : 6.13

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1183

guide sleeve  
travel mm : 10.00

Tolerance mm :  $\pm$  0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 14.00

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : 1300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 123.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 14.00

Rated speed rpm : 1098

Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75

Tolerance mm :  $\pm$  0.75

Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 87.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  8.90

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 1.40  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1000  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  210  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  190  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1300  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96  
Test oil : ISO 4113

Combination No. : 0 402 676 832

Injection pump  
Pump designation : PE6P120A320LS7898  
EP type number : 0 412 626 957

Governor  
Governor design. : RSV350...1000POA648  
Governor no. : 0 421 833 565

Cust. part No. : 0270748202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 A  
Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.75

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1030  
rack travel mm : 10.70

Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1031  
rack travel mm : 10.70

Rated speed rpm : 1106  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1032  
rack travel mm : 10.70

Rated speed rpm : 1107  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1033  
rack travel mm : 10.70

Rated speed rpm : 1108  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1034



rack travel mm	:	10.70
Rated speed rpm	:	1109
Tolerance 1/min	:	± 4
rack travel mm	:	4.00
rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1300
Rated speed rpm	:	1035
rack travel mm	:	10.70
Rated speed rpm	:	1110
Tolerance 1/min	:	± 4
rack travel mm	:	4.00
rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1300

#### LOW IDLE

control lever		
position degree	:	73.0
tolerance degree	:	± 4.0

#### Testing:

Rated speed rpm	:	350
rack travel mm	:	5.00
Tolerance mm	:	± 0.10

rack travel mm	:	2.00
Rated speed rpm	:	405
Tolerance 1/min	:	± 30

Rated speed rpm	:	100
CRT mm min.	:	> 19.50

#### SET IDLE AUXILIARY SPRING

rack travel mm	:	2.00
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#### TORQUE CONTROL

Rated speed rpm	:	980
rack travel mm	:	11.75
Tolerance mm	:	± 0.05

Rated speed rpm	:	600
rack travel mm	:	11.75
Tolerance mm	:	± 0.05

Rated speed rpm	:	400
rack travel mm	:	10.95

Tolerance mm	:	± 0.15
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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	400
Pressure hPa	:	1000
rack travel mm	:	11.75
Tolerance mm	:	± 0.05

#### MEASUREMENT

Pressure hPa	:	-
Rated speed rpm	:	400
rack travel mm	:	10.05
Tolerance mm	:	± 0.15

Rated speed rpm	:	400
-----------------	---	-----

Pressure hPa	:	360
rack travel mm	:	10.60
Tolerance mm	:	± 0.15

Pressure hPa	:	400
rack travel mm	:	10.95
Tolerance mm	:	± 0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1000
Rated speed rpm	:	600
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	170.0
cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 6.0
Spreed		
cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	12.0

Aneroid pressure		
hPa	:	400
Rated speed rpm	:	400
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	125.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 4.0
Spreed		
cm <sup>3</sup> /1000 strokes	:	8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96  
Test oil : ISO 4113

Combination No. : 0 402 678 831

Injection pump  
Pump designation : PE8P120A320LS7901  
EP type number : 0 412 628 918

Governor  
Governor design. : RSV350...1050POA651  
Governor no. : 0 412 833 568

Cust. part No. : 0270745602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442LA  
Power KW : 297.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0

cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

---

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0

cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree : + 4.0

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RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1075  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1145  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1400

---

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.80  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 14.00  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 0.35  
Tolerance mm : + 0.05

Pressure hPa : 800  
rack travel mm : 3.25  
Tolerance mm : + 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1075  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96  
Test oil : ISO 4113

Combination No. : 0 402 678 834

Injection pump  
Pump designation : PE8P120A320LS7903  
EP type number : 0 412 628 920

Governor  
Governor design. : RSV600...950POA663  
Governor no. : 0 421 833 580

Cust. part No. : 027 074 4602

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM442A  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 170  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.50

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 930

Rack travel in mm : 13.40  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 600

Rack travel in mm : 4.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 930

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 970  
rack travel mm : 12.40

Rated speed rpm : 1035  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 971  
rack travel mm : 12.40

Rated speed rpm : 1036  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 972  
rack travel mm : 12.40

Rated speed rpm : 1037  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 973  
rack travel mm : 12.40

Rated speed rpm : 1038  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 974  
rack travel mm : 12.40

Rated speed rpm : 1039

Tolerance 1/min : + 4  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1100  
  
 Rated speed rpm : 975  
 rack travel mm : 12.40  
  
 Rated speed rpm : 1040  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm : + 0.55

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 600  
 rack travel mm : 4.30  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 630  
 Tolerance 1/min : + 30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 930  
 rack travel mm : 13.40  
 Tolerance mm : + 0.05

Rated speed rpm : 600  
 rack travel mm : 13.70  
 Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
 Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 470  
 Rated speed rpm : 500  
 rack travel mm : 0.70  
 Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : 630  
 rack travel mm : 1.75  
 Tolerance mm : + 0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 208.0  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : + 5.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 142.0  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : + 4.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 190.0  
 cm<sup>3</sup>/1000 strokes : + 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : + 14.0

#### LOW IDLE



Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 736 862AA  
Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0 412 716 805  
Governor  
Governor design. : RQV350...1200PA964  
                  : -30K  
Governor no. : 0 421 815 432  
Cust. part No. : 3282470

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA-A  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 5.0  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 6.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.76  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1269  
guide sleeve  
travel mm : 9.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 829  
guide sleeve  
travel mm : 6.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 322  
guide sleeve  
travel mm : 1.98  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 372  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 3.76  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1630  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.65  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. :  $>$  7.65

Rated speed rpm : 423

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.35

Rated speed rpm : 1100  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -

Rated speed rpm : 1100  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 675  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 340  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.65  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.10.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 605  
  
Injection pump  
Pump designation : PES6P120A320RS7324  
EP type number : 0 412 726 905  
  
Governor  
Governor design. : RQV300...920/1200PA1  
: 260  
Governor no. : 0 421 814 170  
  
Cust. part No. : 51.11103-7461

Customer-spec. information  
Customer : MAN  
Motor : D0826LF11/LFL03  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 087  
  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 105  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 207.0  
Tolerance bar : ± 3.0

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.00

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0

cm<sup>3</sup>/1000 strokes : + 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 11.0

Speed

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 1000

Rack travel in mm : 12.45  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve  
travel mm : 1.64  
Tolerance mm : + 0.20

Rated speed rpm : 1256  
guide sleeve  
travel mm : 10.36  
Tolerance mm : + 0.15

Rated speed rpm : 1238  
guide sleeve  
travel mm : 10.09  
Tolerance mm : + 0.25

Rated speed rpm : 660  
guide sleeve  
travel mm : 5.62  
Tolerance mm : + 0.25

Rated speed rpm : 1460  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

#### GUIDE SLEEVE POSITION

Rated speed rpm : 1330

Rack travel in mm : 11.45  
Tolerance mm : + 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 302.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 11.45  
Rated speed rpm : 1245

Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1330  
 Tolerance 1/min : + 15  
 rack travel mm : 0.25  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
 position degree : 261.0  
 tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 5.70  
 Tolerance mm : + 0.10  
 Rated speed rpm : 200  
 CRT mm min. : > 8.40  
 Rated speed rpm : 360

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
 rack travel mm : 12.45  
 Tolerance mm : + 0.05  
 Rated speed rpm : 1200  
 rack travel mm : 12.45  
 Tolerance mm : + 0.10  
 Rated speed rpm : 750  
 rack travel mm : 12.45  
 Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1500  
 rack travel mm : 12.45  
 Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 8.10  
 Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 140  
 rack travel mm : 8.45  
 Tolerance mm : + 0.05

Pressure hPa : 700  
 rack travel mm : 11.50  
 Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 220  
 Rated speed rpm : < 250

Check  
 speed 1/min : > 200  
 Check  
 speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 199.0  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 750  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 207.0  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 126.0  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY



Rack travel in mm : 11.45  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 796 814  
Injection pump  
Pump designation : PES6P120A720RS7367  
EP type number : 0 412 726 932  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 026

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.6000

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 076  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 1050  
Uact V : 2.900  
Del. quantity  
cm3/1000 strokes : 296.0  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500  
Uact V : 2.690  
Del. quantity  
cm3/1000 strokes : 238.0  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0

### TEST POINT L1

Rated speed rpm : 275  
Uact V : 1.640  
Tolerance Volt : +/- 0.030  
Check tolerance  
Volt : +/- 0.060  
Del. quantity  
cm3/1000 strokes : 24.0  
cm3/1000 strokes : +/- 3.0  
Spreed  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 456 122A  
Injection pump  
Pump designation : PES6MW100/321RS1201  
EP type number : 0 413 406 190  
Governor  
Governor design. : RQ250/1200MW84-13  
Governor no. : 0 420 082 068

Cust. part No. : 3-7561

Customer-spec. information  
Customer : MAN  
Motor : D 0826 LOH13  
Power KW : 151.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 250

Rack travel in mm : 5.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Speed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.66  
Tolerance mm : + 0.10

Rated speed rpm : 1257  
guide sleeve  
travel mm : 7.61  
Tolerance mm : + 0.10

Rated speed rpm : 1200  
guide sleeve  
travel mm : 7.30  
Tolerance mm : + 0.10

Rated speed rpm : 912  
guide sleeve  
travel mm : 7.08  
Tolerance mm : + 0.10

Rated speed rpm : 359  
guide sleeve  
travel mm : 3.70  
Tolerance mm : + 0.10

Rated speed rpm : 520  
guide sleeve  
travel mm : 7.00  
Tolerance mm : + 0.10

Rated speed rpm : 1380

guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

Rated speed rpm : 1059  
guide sleeve  
travel mm : 7.23  
Tolerance mm : + 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 16.50  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1253  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 150

CRT mm min. :  $>$  7.00

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1200  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 150  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1253  
Tolerance 1/min :  $\pm$  8

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.11.96  
Test oil : ISO 4113

Combination No. : 0 401 876 345

Injection pump  
Pump designation : PE6P120B320RS3301  
EP type number : 0 411 826 819

Governor  
Governor design. : RSV250...1100POA656  
Governor no. : 0 421 833 574

Cust. part No. : 3826519 P01 v. 10/96

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 102 D  
Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration  
damper  
(RoBo diaphragm) : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.10  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.10  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 250

Rack travel in mm : 6.20

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 44.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1240

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 19.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 5.70

##### Testing:

Rated speed rpm : 250  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 370  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 1120  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 160  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.50

---

#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.96  
Test oil : ISO 4113

Combination No. : 0 402 846 302

Injection pump  
Pump designation : PE6P120A320RS8520  
EP type number : 0 412 826 202

Governor  
Governor design. : RQV275...1000PA1269K  
Governor no. : 0 421 815 969

Cust. part No. : 1310222/2

---

Customer-spec. information  
Customer : DAF  
Motor : XF 355 M  
Power KW : 355.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

F04

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 980

---

Rack travel in mm : 14.15  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	353.0
<hr/>	
cm <sup>3</sup> /1000 strokes :	± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	± 5.0
<hr/>	
Spreed	
cm <sup>3</sup> /1000 strokes :	6.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	12.0
<hr/>	
Rated speed rpm :	275
<hr/>	
Rack travel in mm :	4.50
Tolerance mm :	± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes :	18.0
cm <sup>3</sup> /1000 strokes :	± 3.0
Check tolerance	
cm <sup>3</sup> /1000S. :	± 6.0
Spreed	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S. :	13.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	2.04
Tolerance mm :	± 0.20
<hr/>	
Rated speed rpm :	1063
guide sleeve	
travel mm :	10.06
Tolerance mm :	± 0.15
<hr/>	
Rated speed rpm :	399
guide sleeve	
travel mm :	3.39
Tolerance mm :	± 0.25
<hr/>	
Rated speed rpm :	1260
guide sleeve	
travel mm :	13.50
Tolerance mm :	± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1123
Rack travel in mm :	13.20
Tolerance mm :	± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	980
Aneroid pressure	
hPa :	1500
Del. quantity	
cm <sup>3</sup> /1000 strokes :	353.0
cm <sup>3</sup> /1000 strokes :	± 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	± 5.0
Spreed	
cm <sup>3</sup> /1000 strokes :	6.0
Check tolerance	
cm <sup>3</sup> /1000S. :	12.0

CONTROL LEVER

control lever	
position degree :	118.0
tolerance degree :	± 4.0

RATED SPEED

rack travel mm :	13.15
Rated speed rpm :	1050
Tolerance 1/min :	± 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1160
Tolerance 1/min :	± 15
<hr/>	
rack travel mm :	0.70
Tolerance mm :	± 0.70
Rated speed rpm :	1275

LOW IDLE

control lever	
position degree :	73.0
tolerance degree :	± 4.0

Testing:

Rated speed rpm :	275
rack travel mm :	4.50
Tolerance mm :	± 0.10
<hr/>	
Rated speed rpm :	175

CRT mm min. : > 6.00

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 8.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 750  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 380  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

F06

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 351.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

#### BREAKAWAY

Rack travel in mm : 13.15  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.11.96  
Test oil : ISO 4113

Combination No. : 0 402 946 014

Injection pump  
Pump designation : PES6P120A720LS8037  
EP type number : 0 412 926 024

Governor  
Governor design. : RQV250...1050PA1236K  
Governor no. : 0 421 815 970

Cust. part No. : 1370101

Customer-spec. information  
Customer : SCANIA  
Motor : DSC1202

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 85  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 180.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 775

Rack travel in mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0

---

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Rated speed rpm : 250

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.79  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1116  
guide sleeve  
travel mm : 10.09  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 644  
guide sleeve  
travel mm : 4.47  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 290  
guide sleeve  
travel mm : 2.62  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1170

Rack travel in mm : 12.10  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 775  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

##### CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

##### LOW IDLE



control lever  
position degree : 75.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm : ± 0.30

Rated speed rpm : 150  
CRT mm min. : > 7.30  
Rated speed rpm : 275

#### TORQUE CONTROL

Rated speed rpm : 775  
rack travel mm : 14.05  
Tolerance mm : ± 0.05

Rated speed rpm : 650  
rack travel mm : 13.05  
Tolerance mm : ± 0.10

Rated speed rpm : 1050  
rack travel mm : 13.10  
Tolerance mm : ± 0.10

Rated speed rpm : 675  
rack travel mm : 13.30  
Tolerance mm : ± 0.30

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 14.05  
Tolerance mm : ± 0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 775  
rack travel mm : 8.50  
Tolerance mm : ± 0.20

Rated speed rpm : 775

Pressure hPa : 300  
rack travel mm : 9.80  
Tolerance mm : ± 0.15

Pressure hPa : 610  
rack travel mm : 11.50  
Tolerance mm : ± 0.05

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 170

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 190

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.0  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 10.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 8.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 675  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 323.0  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 400 074 884  
  
Injection pump  
Pump designation : PES4M55C320RS184  
EP type number : 0 410 054 938

Governor  
Governor design. : RSF375/1900M77  
Governor no. : 0 420 021 273

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601-2.3L  
Power KW : 58.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 16.50  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1850

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 42.0

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.5

Spread  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000s. : 3.0

Rated speed rpm : 375  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 6.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25  
Tolerance mm :  $\pm$  0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1850  
Ref. pressure  
ALDA / ADA hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 42.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2200  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 2400  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
CRT mm max. : 1.45

LOW IDLE

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring  
Rated speed rpm : 375  
rack travel mm : 4.70

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 3.40  
Tolerance mm :  $\pm$  0.10

Load pick-up

Rated speed rpm : 250  
rack travel mm :  $>$  10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 4.70  
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1850  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 940  
rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40

Tolerance mm : + 0.10  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm : + 0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1000  
Del. quantity  
cm3/1000 strokes : 39.4  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 2.0  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2200  
rack travel mm : 5.60  
Tolerance mm : + 0.25  
Del. quantity  
cm3/1000 strokes : 16.0  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : > 20.10  
Del. quantity  
cm3/1000 strokes : 59.8  
cm3/1000 strokes : + 4.0  
Check tolerance  
cm3/1000S. : + 5.0  
Spreed  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 375  
Del. quantity  
cm3/1000 strokes : 7.8  
Check tolerance  
cm3/1000S. : + 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

control lever  
position degree : > 47.00

control lever  
position degree : < 44.50

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 14.0  
tolerance degree : + 2.0

Rated speed rpm : 425

Rack travel in mm : 7.00  
Tolerance mm : + 0.80  
Del. quantity  
cm3/1000 strokes : 15.3  
cm3/1000 strokes : + 3.5  
Check tolerance  
cm3/1000S. : + 4.5  
Vacuum hPa : 450.0

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 400 075 925  
  
Injection pump  
Pump designation : PES5M55C320RS201  
EP type number : 0 410 055 972  
  
Governor  
Governor design. : RSF350/2500M56-13  
Governor no. : 0 420 021 171

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM605  
Power KW : 83.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## Start of delivery blocking

\*NW after s.o.d. : 16.50  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 37.0

cm3/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. : ± 1.5

Spread  
cm3/1000 strokes : 2.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 7.40

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 8.5

cm<sup>3</sup>/1000 strokes : ± 0.5

Spreed

cm<sup>3</sup>/1000 strokes : 1.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm<sup>3</sup>/1000 strokes : 37.0

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

Spreed

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2700

rack travel mm : 7.50

Tolerance mm : ± 0.30

Rated speed rpm : 3150

rack travel mm : 0.50

Tolerance mm : ± 0.50

---

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1400

CRT mm max. : 1.95

---

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 7.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 475

rack travel mm : 5.40

Tolerance mm : ± 0.10

rack travel mm : 3.00

Rated speed rpm : 700

Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

rack travel mm : > 10.00

Rated speed rpm : 1400

CRT mm max. : 1.95

rack travel mm : 7.40

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 12.75

Tolerance mm : ± 0.05

Rated speed rpm : 2300

rack travel mm : 12.30

Tolerance mm : ± 0.15

Rated speed rpm : 2500

rack travel mm : 11.90

Tolerance mm : ± 0.15

---

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1400

Ref. pressure

ALDA / ADA hPa : 940

rack travel mm : -0.10

Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 1400  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40  
Tolerance mm :  $\pm$  0.10

Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2300  
Del. quantity  
cm3/1000 strokes : 39.3  
cm3/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm3/1000S. :  $\pm$  1.8  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2500  
Spreed  
Del. quantity  
cm3/1000 strokes : 38.0  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  2.0  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2700  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm3/1000 strokes : 14.0  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

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Rated speed rpm : 100  
rack travel mm : 21.60  
Tolerance mm :  $\pm$  1.50  
Del. quantity  
cm3/1000 strokes : 55.0  
cm3/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm3/1000S. :  $\pm$  5.0  
Spreed  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm3/1000 strokes : 9.5  
Check tolerance  
cm3/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

control lever  
position degree :  $>$  49.00

control lever  
position degree :  $<$  46.50

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

Rated speed rpm : 400  
Rack travel in mm : 8.25  
Tolerance mm :  $\pm$  0.70  
Del. quantity  
cm3/1000 strokes : 12.0  
cm3/1000 strokes :  $\pm$  3.5  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Vacuum hPa : 450.0

---

#### TESTING PNEUMATIC SHUTOFF DEVICE



Rated speed rpm : 350  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.96  
Test oil : ISO 4113

Combination No. : 0 400 075 926

Injection pump  
Pump designation : PES5M55C320RS201  
EP type number : 0 410 055 972

Governor  
Governor design. : RSF350/2500M75-3  
Governor no. : 0 420 021 173

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM605  
Power KW : 83.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

\*NW after s.o.d. : 16.50  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 7.40

Tolerance mm :  $\pm$  0.10

Del. quantity

cm3/1000 strokes : 8.5

cm3/1000 strokes :  $\pm$  0.5

Spreed

cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm :  $\pm$  0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm3/1000 strokes : 37.0

cm3/1000 strokes :  $\pm$  0.5

Check tolerance

cm3/1000S. :  $\pm$  1.5

Spreed

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2700

rack travel mm : 7.50

Tolerance mm :  $\pm$  0.30

Rated speed rpm : 3150

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1400

CRT mm max. : 1.95

##### LOW IDLE

Setting point w/out Lumper spring

Rated speed rpm : 350

rack travel mm : 7.40

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 475

rack travel mm : 5.40

Tolerance mm :  $\pm$  0.10

rack travel mm : 3.00

Rated speed rpm : 700

Tolerance 1/min :  $\pm$  50

##### Load pick-up

Rated speed rpm : 250

rack travel mm :  $>$  10.00

Rated speed rpm : 1400

CRT mm max. : 1.95

rack travel mm : 7.40

Rated speed rpm : 350

##### TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 12.75

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 2300

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 2500

rack travel mm : 11.90

Tolerance mm :  $\pm$  0.15

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 1400

Ref. pressure

ALDA / ADA hPa : 940

rack travel mm :  $-$ 0.10

Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Rated speed rpm : 1400  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40  
Tolerance mm :  $\pm$  0.10

Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.3  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2500  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

## HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2700  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.60  
Tolerance mm :  $\pm$  1.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

## LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

control lever  
position degree : > 49.00

control lever  
position degree : < 46.50

## SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

Rated speed rpm : 400  
Rack travel in mm : 8.25  
Tolerance mm :  $\pm$  0.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Vacuum hPa : 450.0

---

ADJUST ACTIVE SURGE DAMPING ARD

Rated speed rpm : 1400  
rack travel mm : 1.70  
Tolerance mm :  $\pm$  0.15

---

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 5/6 963  
Injection pump  
Pump designation : PES6M55C320RS157-1  
EP type number : 0 410 056 991  
Governor  
Governor design. : RSF450/2300M68-1  
Governor no. : 0 420 021 141

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM603A (3.0L)  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

\*NW after s.o.d. : 19.50  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.5

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.5

Speed

cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 3.0

Rated speed rpm : 450

Rack travel in mm : 5.50

Tolerance mm :  $\pm$  0.10

Del. quantity

cm3/1000 strokes : 7.0

cm3/1000 strokes :  $\pm$  0.5

Spread

cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm :  $\pm$  0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity

cm3/1000 strokes : 48.5

cm3/1000 strokes :  $\pm$  0.5

Check tolerance

cm3/1000S. :  $\pm$  1.5

Spread

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2500

rack travel mm : 8.60

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 2950

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.95

##### LOW IDLE

control lever

position degree : 12.0

tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.50

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.40

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.50

Rated speed rpm : 670

Tolerance 1/min :  $\pm$  50

##### Load pick-up

Rated speed rpm : 250

rack travel mm :  $>$  12.50

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 5.50

Rated speed rpm : 450

##### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.15

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1600

rack travel mm : 12.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 2200

rack travel mm : 11.60

Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 1000

Ref. pressure  
ALDA / ADA hPa : 1400  
rack travel mm : -0.60  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 1100  
rack travel mm : -2.45  
Tolerance mm : + 0.10

Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -4.60  
Tolerance mm : + 0.20

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1600  
Del. quantity  
cm3/1000 strokes : 47.3  
cm3/1000 strokes : + 0.8  
Check tolerance  
cm3/1000S. : + 1.8  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 2200  
Spreed  
Del. quantity  
cm3/1000 strokes : 45.0  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 2.0  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1000  
Del. quantity  
cm3/1000 strokes : 37.0  
cm3/1000 strokes : + 0.5  
Check tolerance  
cm3/1000S. : + 1.5  
Spreed  
cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1000  
Del. quantity  
cm3/1000 strokes : 37.0  
cm3/1000 strokes : + 0.5  
Check tolerance  
cm3/1000S. : + 1.5  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 2500  
rack travel mm : 8.60  
Tolerance mm : + 0.20  
Del. quantity  
cm3/1000 strokes : 32.0  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : > 20.10  
Del. quantity  
cm3/1000 strokes : 52.0  
Spreed  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

#### LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm3/1000 strokes : 8.3  
Check tolerance  
cm3/1000S. : + 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5



---

control lever  
position degree : > 35.50

control lever  
position degree : < 33.00

---

SETTING PNEUMATIC FAST IDLE (PLA)  
(PLA) POSITION

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

Rated speed rpm : 500

Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.80

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Vacuum hPa : 450.0

---

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 450  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.96  
Test oil : ISO 4113

Combination No. : 0 401 840 065

Injection pump  
Pump designation : PE12P100A320LS828  
EP type number : 0 411 800 036

Governor  
Governor design. : RQ750PA484R  
Governor no. : 0 421 801 104

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 404  
Power KW : 202.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 631 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
                  : - 3- 4- 11- 10  
                  : - 2- 6- 7

Phasing : 0-45-60-105-120  
          : -165-180-225-240  
          : -285-300-345

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 250

Rack travel in mm : 8.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.5

Spreed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.0  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

rack travel mm : 11.10  
Rated speed rpm : 753

Tolerance 1/min : ± 3

rack travel mm : 5.40  
Rated speed rpm : 780

Tolerance 1/min : ± 5

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rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 900

LOW IDLE

Testing:

Rated speed rpm : 250  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.15  
Tolerance mm : ± 0.05

BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 753  
Tolerance 1/min : ± 3

LOW IDLE

Rated speed rpm : 250

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.5

Spreed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.11.96  
Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump  
Pump designation : PE6P130A320RS7282  
EP type number : 0 412 636 825

Governor  
Governor design. : RQV300...900PA1059  
Governor no. : 0 421 814 049

Cust. part No. : 865851-P07 V.10.96

Customer-spec. information  
Customer : PENTA  
Motor : TAD 1230 P

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.30  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 352.0

cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.81  
Tolerance mm : ± 0.25

Rated speed rpm : 928  
guide sleeve  
travel mm : 7.72  
Tolerance mm : ± 0.25

Rated speed rpm : 650  
guide sleeve  
travel mm : 5.16  
Tolerance mm : ± 0.25

Rated speed rpm : 315  
guide sleeve  
travel mm : 1.98  
Tolerance mm : ± 0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.54  
Tolerance mm : ± 0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 3.17  
Tolerance mm : ± 0.25

Rated speed rpm : 1210  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 980

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 2000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 352.0  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : ± 4.0

control lever  
position degree : 117.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 915  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1100

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 18.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

rack travel mm :  $>$  5.60  
Rated speed rpm : 200

Rated speed rpm : 365

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 1420  
rack travel mm : 3.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 640  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 915  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.96  
Test oil : ISO 4113

Combination No. : 0 402 648 967

Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877

Governor  
Governor design. : RQV300...1050PA1078  
: -1K  
Governor no. : 0 421 815 361

Cust. part No. : 9275447

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.40

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1185

Rack travel in mm : 10.80

Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 277.5

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 10.85  
Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.40



Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 200  
CRT mm min. :  $>$  7.60  
Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050

Pressure hPa : 725  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 525  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 294.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 10.85  
Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 967A  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
Governor  
Governor design. : RQV300...1050PA1078  
: -1K  
Governor no. : 0 421 815 361  
Cust. part No. : 9275447

Customer spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075

G08

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4  
Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 11.85  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 277.5  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 4.0  
Speed  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.40

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 23.0

cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 6.0

Spread

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance

cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.69

Tolerance mm : ± 0.25

Rated speed rpm : 1117

guide sleeve

travel mm : 10.38

Tolerance mm : ± 0.25

Rated speed rpm : 746

guide sleeve

travel mm : 6.20

Tolerance mm : ± 0.25

Rated speed rpm : 353

guide sleeve

travel mm : 2.45

Tolerance mm : ± 0.25

Rated speed rpm : 403

guide sleeve

travel mm : 3.18

Tolerance mm : ± 0.25

Rated speed rpm : 450

guide sleeve

travel mm : 3.66

Tolerance mm : ± 0.25

Rated speed rpm : 1320

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1185

Rack travel in mm : 10.80

Tolerance mm : ± 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 277.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

Spread

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever

position degree : 121.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.85

Rated speed rpm : 1105

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1300

---

##### LOW IDLE

control lever

position degree : 74.0

tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 5.40

Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 200  
 CRT mm min. :  $>$  7.60  
 Rated speed rpm : 400

#### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 11.85  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
 rack travel mm : 11.60  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
 rack travel mm : 9.75  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
 rack travel mm : 11.75  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
 rack travel mm : 10.40  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
 Pressure hPa : 1600  
 rack travel mm : 11.85  
 Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 1050  
 rack travel mm : 9.35  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050

Pressure hPa : 725  
 rack travel mm : 11.00  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 525  
 rack travel mm : 9.65  
 Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 294.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 271.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 550  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 247.5  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

#### BREAKAWAY

Rack travel in mm : 10.85  
 Rated speed rpm : 1105  
 Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 9.40  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 160.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.11.96  
Test oil : ISO 4113

Combination No. : 0 402 670 812

Injection pump  
Pump designation : PE12P120A320LS7902  
EP type number : 0 412 620 848

Governor  
Governor design. : RSV350...1050POA662  
Governor no. : 0 421 833 579

Cust. part No. : 027 074 4302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 448.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 14.50  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 214.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030  
Aneroid pressure  
hPa : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 214.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
rack travel mm : 13.50

Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

Rated speed rpm : 1071  
rack travel mm : 13.50

Rated speed rpm : 1161  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1072  
rack travel mm : 13.50

Rated speed rpm : 1162  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1073  
rack travel mm : 13.50

Rated speed rpm : 1163  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1074



rack travel mm : 13.50

Rated speed rpm : 1164  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

Rated speed rpm : 1075  
rack travel mm : 13.50

Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 405  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  9.30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1250  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 650  
rack travel mm : 4.05  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 19.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.11.96  
Test oil : ISO 4113

Combination No. : 0 402 698 033

Injection pump  
Pump designation : PE8H120/320LS3-2  
EP type number : 0 412 628 003

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 359

Cust. part No. : 0250745602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 442 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, U<sub>act</sub> = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 2.800  
Prestroke solenoid  
Stroke mm : 7.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 341.0  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 328.0  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

Rated speed rpm : 550  
Uact V : 2.700  
Prestroke solenoid  
Stroke mm : 9.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 348.0  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

Rated speed rpm : 630  
Uact V : 2.000  
Prestroke solenoid  
Stroke mm : 5.30

Del. quantity  
cm3/1000 strokes : 201.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 31.0  
cm3/1000 strokes :  $\pm$  3.0  
Spreed  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 1.900  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 108.0  
cm3/1000 strokes :  $\pm$  10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 746 609C  
Injection pump  
Pump designation : PES6P130A720RS7411  
EP type number : 0 412 736 808  
Governor  
Governor design. : RQ275/950PA1274  
Governor no. : 0 421 801 807

Cust. part No. : 221 575

Customer-spec. information  
Customer : RABA  
Motor : siehe Bemerkung

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.20

Tolerance mm : + 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 24.0

cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.17  
Tolerance mm : + 0.20

Rated speed rpm : 1111  
guide sleeve  
travel mm : 6.54  
Tolerance mm : + 0.15

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 354  
guide sleeve  
travel mm : 4.34  
Tolerance mm : + 0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1300

guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1155

Rack travel in mm : 12.10

Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500

Del. quantity

cm<sup>3</sup>/1000 strokes : 263.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 34.0  
tolerance degree : + 4.0

control lever  
position degree : 95.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

control lever  
position degree : 11.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 335  
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 6.80

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.10  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
rack travel mm : 13.10  
Tolerance mm : ± 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.10  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.20  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 380  
rack travel mm : 9.85  
Tolerance mm : ± 0.15

Pressure hPa : 600

rack travel mm : 12.05  
Tolerance mm : ± 0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

#### LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0



Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 627  
  
Injection pump  
Pump designation : PES6P120A720LS7262  
: -1  
EP type number : 0 412 726 918  
  
Governor  
Governor design. : RQV350...925PA1331  
Governor no. : 0 421 814 190

Cust. part No. : 0240746202

Customer-spec. information  
Customer : MTU  
Motor : 6R183-02

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

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Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.02  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve

travel mm : 1.48  
Tolerance mm : ± 0.20

Rated speed rpm : 988  
guide sleeve

travel mm : 8.65  
Tolerance mm : ± 0.15

Rated speed rpm : 485  
guide sleeve

travel mm : 3.02  
Tolerance mm : ± 0.25

Rated speed rpm : 1160  
guide sleeve

travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1028

Rack travel in mm : 11.30  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 975

Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1043

Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50

Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.20

Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.53

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 925  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1200  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 300  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 800  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.15

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 257.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 975  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 400.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

##### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 476 116  
Injection pump  
Pump designation : PES6MW100/720RS1131  
EP type number : 0 413 406 123  
Governor  
Governor design. : RSV350...1300MWOA329  
: -14  
Governor no. : 0 420 085 192  
Cust. part No. : 0220742202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1280  
Rack travel in mm : 10.55  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 5.80

Tolerance mm : ± 0.25

Del. quantity

cm<sup>3</sup>/1000 strokes : 12.0

cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.5

Spread

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1280

Aneroid pressure

hPa : 800

Del. quantity

cm<sup>3</sup>/1000 strokes : 89.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

Spread

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever

position degree : 114.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1550

rack travel mm : 4.00

Rated speed rpm : 1420

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1330

rack travel mm : 9.50

Rated speed rpm : 1414

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1331

rack travel mm : 9.50

Rated speed rpm : 1415

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1332

rack travel mm : 9.50

Rated speed rpm : 1416

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1333

rack travel mm : 9.50

Rated speed rpm : 1417

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1338

rack travel mm : 9.50

Rated speed rpm : 1422

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1339

rack travel mm : 9.50

Rated speed rpm : 1423

Tolerance 1/min : ± 4

rack travel mm : 4.00

##### LOW IDLE

control lever

position degree : 79.0

tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350

rack travel mm : 5.80

Tolerance mm :  $\pm$  0.25  
rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min :  $\pm$  30  
  
Rated speed rpm : 100  
  
CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1280  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 800  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.10  
  
Rated speed rpm : 1100  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 470  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 300  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 476 147  
Injection pump  
Pump designation : PES6MW100/720RS1131  
: -1  
EP type number : 0 413 406 165  
Governor  
Governor design. : RSV750...1200MWOA329  
: -17  
Governor no. : 0 420 085 291  
Cust. part No. : 0270747902

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 163.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089

H02

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1180  
Rack travel in mm : 13.15  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5

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Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 750

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm3/1000 strokes : 12.0  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 4.75

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 104.0  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

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CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree :  $\pm$  4.0

H03

RATED SPEED

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1230  
rack travel mm : 12.10

Rated speed rpm : 1314  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

Rated speed rpm : 1231  
rack travel mm : 12.10

Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

Rated speed rpm : 1232  
rack travel mm : 12.10

Rated speed rpm : 1316  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

Rated speed rpm : 1233  
rack travel mm : 12.10

Rated speed rpm : 1317  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

Rated speed rpm : 1238  
rack travel mm : 12.10

Rated speed rpm : 1322  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

Rated speed rpm : 1239  
rack travel mm : 12.10

Rated speed rpm : 1323  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

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LOW IDLE

control lever  
position degree : 86.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 750  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.25

rack travel mm : 2.00  
Rated speed rpm : 785  
Tolerance 1/min :  $\pm$  25

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

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#### TORQUE CONTROL

Rated speed rpm : 1180  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 2.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 350  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.05

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600

H04

Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0

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#### LOW IDLE

Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.11.96  
Test oil : ISO 4113  
Combination No. : 9 400 087 473  
Injection pump  
Pump designation : PE6P120A320RS3178-1  
EP type number : 0 411 826 764  
Governor  
Governor design. : RQV250...950PA921  
: -13  
Governor no. : 0 421 813 796  
Cust. part No. : 421 813 796

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD 122 FK, FR  
Power KW : 287.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 046  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8

H05

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 14.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 260.0  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000s. : ± 4.0  
Spread  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000s. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.95  
Tolerance mm :  $\pm$  0.15  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 985  
guide sleeve  
travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.90  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 700  
guide sleeve  
travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1060  
guide sleeve  
travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1000

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 13.20  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1200

LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.95  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 100

CRT mm min. : > 6.50

Rated speed rpm : 315

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#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.25  
Tolerance mm :  $\pm 0.05$

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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.25  
Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
  
Rated speed rpm : 500  
  
Pressure hPa : 865  
rack travel mm : 3.80  
Tolerance mm :  $\pm 0.10$   
  
Pressure hPa : 100  
rack travel mm : 0.25  
Tolerance mm :  $\pm 0.05$

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

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#### BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm 5$

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
cm<sup>3</sup>/1000 strokes :  $\pm 20.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 24.0$

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#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes :  $\pm 2.5$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.5$   
Speed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.11.96  
Test oil : ISO 4113

Combination No. : 0 400 874 256

Injection pump  
Pump designation : PES4A95D410RS2877  
EP type number : 0 410 894 988

Governor  
Governor design. : RSV350...1400A0C819L  
Governor no. : 0 420 232 617

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364  
Power kW : 65.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 6.70

Tolerance mm : + 0.20

Del. quantity

cm<sup>3</sup>/1000 strokes : 12.0

cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance

cm<sup>3</sup>/1000S. : + 4.5

Spreed

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : + 0.20

governor spring

pre-tension

click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380

Aneroid pressure

hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 72.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance

cm<sup>3</sup>/1000S. : + 3.0

Spreed

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 111.0

tolerance degree : + 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1433  
rack travel mm : 9.55

Rated speed rpm : 1488  
Tolerance 1/min : + 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1620

Rated speed rpm : 1434  
rack travel mm : 9.55

Rated speed rpm : 1489  
Tolerance 1/min : + 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1620

Rated speed rpm : 1435  
rack travel mm : 9.55

Rated speed rpm : 1490  
Tolerance 1/min : + 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1620

Rated speed rpm : 1436  
rack travel mm : 9.55

Rated speed rpm : 1491  
Tolerance 1/min : + 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1620

Rated speed rpm : 1437  
rack travel mm : 9.55

Rated speed rpm : 1492  
Tolerance 1/min : + 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1620

Rated speed rpm : 1438  
rack travel mm : 9.55



Rated speed rpm : 1493  
Tolerance 1/min : +- 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 1620

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#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 6.70  
Tolerance mm : +- 0.20

rack travel mm : 2.00  
Rated speed rpm : 455  
Tolerance 1/min : +- 30

Rated speed rpm : 100  
CRT mm min. : > 19.50

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 455  
rack travel mm : 2.00

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#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 10.55  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 10.60  
Tolerance mm : +- 0.10

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm3/1000 strokes : 51.0  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.20  
Tolerance mm : +- 0.20  
Del. quantity  
cm3/1000 strokes : 83.0  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0

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#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm3/1000 strokes : 12.0  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5  
Spreed  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.11.96  
Test oil : ISO 4113

Combination No. : 0 400 876 430

Injection pump  
Pump designation : PES6A95D410RS2864  
EP type number : 0 410 896 888

Governor  
Governor design. : RSV400...1050A0C2263  
: -10L  
Governor no. : 0 420 232 619

Cust. part No. : 87 800 862

Customer-spec. information  
Customer : FNH-GEOTECH  
Motor : P 396  
Power KW : 142.0

## TEST BENCH REQUIREMENTS

Inlet Line : 1.3

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 15.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spread  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 5.60

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 15.0

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

governor spring

pre-tension

click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 154.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 97.0

tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093

rack travel mm : 12.40

Rated speed rpm : 1158

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1270

Rated speed rpm : 1094

rack travel mm : 12.40

Rated speed rpm : 1159

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1270

Rated speed rpm : 1095

rack travel mm : 12.40

Rated speed rpm : 1160

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1270

Rated speed rpm : 1096

rack travel mm : 12.40

Rated speed rpm : 1161

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1270

Rated speed rpm : 1097

rack travel mm : 12.40

Rated speed rpm : 1162

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1270

Rated speed rpm : 1098

rack travel mm : 12.40

Rated speed rpm : 1163  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1270

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#### LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
 rack travel mm : 5.10

Testing:

Rated speed rpm : 450  
 rack travel mm : 5.60  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
 Rated speed rpm : 575  
 Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 750  
 rack travel mm : 15.20  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
 rack travel mm : 15.25  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
 rack travel mm : 12.90  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
 rack travel mm : 13.40  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
 rack travel mm : 14.25  
 Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1200  
 rack travel mm : 15.25  
 Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 9.20  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 750  
 rack travel mm : 13.70  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
 rack travel mm : 11.80  
 Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 76.5  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 163.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Rated speed rpm : 450  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 15.0

cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5  
Speed  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

Note remarks

Edition : 21.11.96  
Test oil : ISO 4113

Injection pump  
Pump designation : PES6P110A120RS3353  
EP type number : 0 412 016 752

Governor  
Governor design. : RQV450...1100PA1233  
: -1K  
Governor no. : 0 421 815 479

Cust. part No. : 3926776

Customer : CDC  
Motor : 6CTA  
Power KW : 194.0

Inlet Line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar :  $\pm$  0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure : 208.5  
Tolerance bar :  $\pm$  1.5

Test Lines : 1 680 750 015

x inside diameter : 3.0  
x length mm : 600

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

Test pressure bar : 17.0  
Tolerance bar :  $\pm$  1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance :  $\pm 0.50$   
Check  
tolerance \*NW :  $\pm 0.75$

```

°NW after s.o.d. :      8.00
Tolerance         : +-  0.50
Check
tolerance °NW     : +-  0.75

```

Barrel no. : 1

```
and maximum rack
travel          :    13.00
Difference * CS :    1.20
```

Rated speed rpm : 1000

Rack travel in mm : 13.15  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.5

cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 4.0
Spreed cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0
Rated speed rpm	: 500
Rack travel in mm	: 5.90
Tolerance mm	: + 0.20
Del. quantity cm3/1000 strokes	: 21.5
cm3/1000 strokes	: + 3.0
Check tolerance cm3/1000S.	: + 5.0
Spreed cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 500
guide sleeve travel mm	: 1.82
Tolerance mm	: + 0.25
Rated speed rpm	: 1214
guide sleeve travel mm	: 8.09
Tolerance mm	: + 0.15
Rated speed rpm	: 890
guide sleeve travel mm	: 4.75
Tolerance mm	: + 0.25
Rated speed rpm	: 1570
guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1200

Del. quantity cm3/1000 strokes	: 206.5
cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 4.0
Spreed cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

#### CONTROL LEVER

control lever position degree	: 117.0
tolerance degree	: + 6.0

#### RATED SPEED

rack travel mm	: 11.45
Rated speed rpm	: 1160
Tolerance 1/min	: + 15
rack travel mm	: 6.45
Rated speed rpm	: 1230
Tolerance 1/min	: + 5
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

#### LOW IDLE

control lever position degree	: 79.0
tolerance degree	: + 6.0

#### Testing:

Rated speed rpm	: 500
rack travel mm	: 5.90
Tolerance mm	: + 0.20
Rated speed rpm	: 400
CRT mm min.	: > 7.50
Rated speed rpm	: 500

#### TORQUE CONTROL

Rated speed rpm	: 1000
rack travel mm	: 13.15
Tolerance mm	: + 0.05

Rated speed rpm : 750  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1000  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1000

Pressure hPa : 720  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 580  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  380

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  390

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### BREAKAWAY

Rack travel in mm : 11.45  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  15

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 161.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

##### LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113

Combination No. : 0 402 746 621

Injection pump  
Pump designation : PES6P120A72ORS7424  
EP type number : 0 412 726 964

Governor  
Governor design. : RQV325...875PA944  
: -24K  
Governor no. : 0 421 815 535

Cust. part No. : 313GC5223-P14

## Customer-spec. information

Customer : MACK  
Motor : EM7-300  
Power KW : 224.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 413 359 008

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 14.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 312.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 340

Rack travel in mm : 5.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 340  
guide sleeve  
travel mm : 1.92  
Tolerance mm : ± 0.20

Rated speed rpm : 939  
guide sleeve  
travel mm : 7.51  
Tolerance mm : ± 0.15

Rated speed rpm : 726  
guide sleeve  
travel mm : 5.63  
Tolerance mm : ± 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.81  
Tolerance mm : ± 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

H20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 312.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 930  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1210

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 340  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Rated speed rpm : 275

CRT mm min. : > 6.06

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 875  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 510  
rack travel mm : 14.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 625  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 510  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 510  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 510

Pressure hPa : 740  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 400  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  255

---

#### FUEL DELIVERY CHARACTERISTICS

H21

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 510  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 402.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 930  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  30.0

---

##### LOW IDLE

Rated speed rpm : 340  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113

Combination No. : 0 401 496 003

Injection pump  
Pump designation : PE6R120/72ORS1504  
EP type number : 0 411 426 003

Governor  
Governor design. : RE31  
Governor no. : 0 421 890 200

Cust. part No. : 1556415  
: -P10v20.11.96

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD 164  
Power KW : 382.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 525  
Uact V : 2.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 390.0  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900  
Uact V : 3.240  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 386.0  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 9.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 13.0

Rated speed rpm : 900  
Uact V : 2.000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 6.0

TEST POINT L1

Rated speed rpm	:	265
Rated speed rpm	:	265
Uact V	:	1.630
Uact V	:	1.630
Tolerance Volt	:	+ 0.060
Check tolerance	:	
Volt	:	+ 0.060
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	19.0
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	20.0
cm <sup>3</sup> /1000 strokes	:	+ 3.0
cm <sup>3</sup> /1000 strokes	:	+ 3.0
Spreed	:	
cm <sup>3</sup> /1000 strokes	:	7.0
cm <sup>3</sup> /1000 strokes	:	7.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	11.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	11.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.11.96  
Test oil : ISO 4113

Combination No. : 0 402 046 875

Injection pump  
Pump designation : PES6P110A320RS3329Z  
EP type number : 0 412 016 744

Governor  
Governor design. : RQV325...1250PA1251  
Governor no. : 0 421 814 164

Cust. part No. : 1309376/0

## Customer-spec. information

Customer : DAF  
Motor : NS156M  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	144.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	7.5
Rated speed rpm	:	325
Rack travel in mm	:	4.50
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	26.0
cm <sup>3</sup> /1000 strokes	:	± 2.5
Check tolerance cm <sup>3</sup> /1000S.	:	± 5.0
Spreed cm <sup>3</sup> /1000 strokes	:	12.0
Check tolerance cm <sup>3</sup> /1000S.	:	15.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	325
guide sleeve travel mm	:	1.25
Tolerance mm	:	± 0.20
Rated speed rpm	:	1298
guide sleeve travel mm	:	10.25
Tolerance mm	:	± 0.15
Rated speed rpm	:	863
guide sleeve travel mm	:	5.41
Tolerance mm	:	± 0.25
Rated speed rpm	:	520
guide sleeve travel mm	:	3.02
Tolerance mm	:	± 0.25
Rated speed rpm	:	1510
guide sleeve travel mm	:	13.50

H27

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1370
Rack travel in mm	:	10.85
Tolerance mm	:	± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	1500
Del. quantity cm <sup>3</sup> /1000 strokes	:	144.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	7.5

CONTROL LEVER

control lever position degree	:	123.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	10.85
Rated speed rpm	:	1300
Tolerance 1/min	:	± 5
rack travel mm	:	4.00
Rated speed rpm	:	1375
Tolerance 1/min	:	± 15
rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	1500

LOW IDLE

control lever position degree	:	76.0
tolerance degree	:	± 4.0

Testing:

Rated speed rpm	:	325
-----------------	---	-----

rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 225

CRT mm min. :  $>$  6.00

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 7.35  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 600

Pressure hPa : 370  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 200  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500

H28

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 10.85  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 15.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.11.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 748G  
Injection pump  
Pump designation : PES6P110A720RS3305  
: -1  
EP type number : 0 412 016 742  
Governor  
Governor design. : RSV300...1100P1A555  
Governor no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI  
Power KW : 218.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 207.5  
Tolerance bar : ± 1.5

J01

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0

---

cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000s. : + 3.5

---

Spread  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000s. : 7.5

---

Rated speed rpm : 400

Rack travel in mm : 4.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.5

Spread  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1150

Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 3.5

Spread  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.5

#### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 10.85  
Rated speed rpm : 925  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 980  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1260

rack travel mm : 4.00  
Rated speed rpm : 995

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 3.90

#### Testing:

Rated speed rpm : 500  
rack travel mm : 4.40  
Tolerance mm : + 0.10

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 12.30  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 12.30  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 12.30  
Tolerance mm : + 0.10

Rated speed rpm : 450  
rack travel mm : 13.70  
Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 550  
Pressure hPa : 1150  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 550  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550

Pressure hPa : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1150  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : 1150  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

#### BREAKAWAY

Rack travel in mm : 10.85

J03

Rated speed rpm : 925  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.11.96  
Test oil : ISO 4113

Combination No. : 0 402 648 784

Injection pump  
Pump designation : PE8P120A320LS7845  
EP type number : 0 412 628 861

Governor  
Governor design. : RQV350...1050PA1324  
Governor no. : 0 421 814 187

Cust. part No. : 0280740202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM402 LA  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.02  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1107  
guide sleeve  
travel mm : 8.18  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 890  
guide sleeve  
travel mm : 5.70  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.56  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1197  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1154

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1350

##### LOW IDLE



control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. :  $>$  7.56

Rated speed rpm : 415

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 350  
Rated speed rpm : 500  
rack travel mm : 0.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 750  
rack travel mm : 2.40  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  280

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 981  
  
Injection pump  
Pump designation : PE8P120A320LS7839  
: -10  
EP type number : 0 412 628 855  
  
Governor  
Governor design. : RQ300/950PA971-10  
Governor no. : 0 421 801 754

Cust. part No. : 0250749002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.20  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.72  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.34  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 374  
guide sleeve  
travel mm : 3.81  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 14.20  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  40

Rated speed rpm : 200  
CRT mm min. :  $>$  7.20

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400  
Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 500  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 609A  
  
Injection pump  
Pump designation : PES6P130A720RS7411  
EP type number : 0 412 736 808  
  
Governor  
Governor design. : RQ275/950PA1274  
Governor no. : 0 421 801 807

Cust. part No. : 221 574

Customer-spec. information  
Customer : RABA  
Motor : SIEHE BEMERKUNG  
Power KW : 190.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 246.0
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
Rated speed rpm	: 275

Rack travel in mm	: 4.20
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 24.0
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve travel mm	: 2.06
Tolerance mm	: ± 0.20

Rated speed rpm	: 1103
guide sleeve travel mm	: 6.55
Tolerance mm	: ± 0.15

Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 355
guide sleeve travel mm	: 4.25
Tolerance mm	: ± 0.10

Rated speed rpm	: 450
guide sleeve travel mm	: 6.00

Tolerance mm	: ± 0.10
Rated speed rpm	: 1290
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1147
Rack travel in mm	: 11.60
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 246.0
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 33.0
tolerance degree	: ± 4.0

control lever position degree	: 94.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 11.60
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1180
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1200

##### LOW IDLE



control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 11.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 346  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  7.22

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 260  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 440  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $<$  100  
Rated speed rpm :  $>$  195

Check  
speed 1/min :  $<$  80  
Check  
speed 1/min :  $>$  215

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.09.95  
Test oil : ISO 4113

Combination No. : 0 402 746 957

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1

EP type number : 0 412 726 939

Governor  
Governor design. : RQV350...1150PA1074  
: -2K  
Governor no. : 0 421 815 367

Cust. part No. : 0250741002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 157.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 3.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1206  
guide sleeve  
travel mm : 9.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 855  
guide sleeve  
travel mm : 5.56  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1331

Rack travel in mm : 13.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.40  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

## Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  6.88

Rated speed rpm : 400

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1150

Pressure hPa : 1050  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 400  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.15

## START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

## BREAKAWAY

Rack travel in mm : 13.40  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.80

Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.11.96  
Test oil : ISO 4113

Combination No. : 0 402 798 201

Injection pump  
Pump designation : PES8H120/720LS1003  
EP type number : 0 412 728 201

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 358

Cust. part No. : 1364711

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 1413  
Power KW : 390.0

## TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

J20

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 8.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 3- 4  
                  : - 5- 6- 8

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 700  
Uact V : 3.150  
Prestroke solenoid  
Stroke mm : 7.60  
Del. quantity  
cm3/1000 strokes : 344.5  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000s. : +/- 6.0  
Spreed  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000s. : 12.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 3.450  
Prestroke solenoid  
Stroke mm : 8.20  
Del. quantity  
cm3/1000 strokes : 365.0  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000s. : +/- 7.0

### TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.400  
Tolerance Volt : +/- 0.060  
Check tolerance  
Volt : +/- 0.060  
Prestroke solenoid  
Stroke mm : 9.50  
Del. quantity  
cm3/1000 strokes : 31.0  
cm3/1000 strokes : +/- 3.0  
Spreed  
cm3/1000 strokes : 4.0



Check tolerance  
cm3/1000s. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 403 244 056  
  
Injection pump  
Pump designation : PES4MW100/720RS1525  
EP type number : 0 413 204 022  
  
Governor  
Governor design. : RQ300/1300MW160  
Governor no. : 0 420 082 077

Cust. part No. : 0270749502

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Speed  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 3.90  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 12.0  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 4.5  
Spreed  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.12  
Tolerance mm : + 0.20

Rated speed rpm : 1353  
guide sleeve  
travel mm : 6.52  
Tolerance mm : + 0.15

Rated speed rpm : 1300  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 458  
guide sleeve  
travel mm : 2.45  
Tolerance mm : + 0.10

Rated speed rpm : 750  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1570  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 119.0  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1465  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1575

LOW IDLE

control lever  
position degree : 35.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 4.30

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 2.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 200  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200

Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

##### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113  
Combination No. : D 403 456 120A  
Injection pump  
Pump designation : PES6MW100/321RS1210  
EP type number : D 413 406 201  
Governor  
Governor design. : RQ250/1050MW84-11  
Governor no. : D 420 082 066

Cust. part No. : 3-757?

Customer-spec. information  
Customer : MAN  
Motor : D 0826 LUH 06  
Power KW : 184.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : D 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 162.0  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

Speed  
cm3/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.25  
Tolerance mm : ± 0.20

Rated speed rpm : 1110  
guide sleeve  
travel mm : 6.35  
Tolerance mm : ± 0.15

Rated speed rpm : 800  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 335  
guide sleeve  
travel mm : 3.16  
Tolerance mm : ± 0.10

Rated speed rpm : 470  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1105  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 6.50

---

### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1100  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 150  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  8

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 474 021E  
Injection pump  
Pump designation : PES4MW100/72ORS1181  
EP type number : 0 413 404 107  
Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D924TI-E A2  
Power KW : 132.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 049  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

K02

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000  
Rack travel in mm : 13.60  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 184.0  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 4.0  
Spreed

cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.60  
Tolerance mm : + 0.20

Del. quantity  
cm3/1000 strokes : 20.0  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 4.5

Spreed  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 3.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1250  
Del. quantity  
cm3/1000 strokes : 184.0  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spreed  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 101.0

##### RATED SPEED

rack travel mm : 12.60  
Rated speed rpm : 1025  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1075  
Tolerance 1/min : + 10

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1175

rack travel mm : 4.00  
Rated speed rpm : 1085

##### LOW IDLE

control lever  
position degree : 73.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.60  
Tolerance mm : + 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.60  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 13.60  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 13.60  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : 1250  
Rated speed rpm : 550  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550

Pressure hPa : 590  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 720  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

K04

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 12.60  
Rated speed rpm : 1025  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 474 021F  
Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0 413 404 107  
Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D924 T-E A2  
Power KW : 120.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.50  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 96.0

##### RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 915  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 975  
Tolerance 1/min : ± 10

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1075

rack travel mm : 4.00  
Rated speed rpm : 980

##### LOW IDLE

control lever  
position degree : 78.0

Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.10

##### Testing:

Rated speed rpm : 550  
rack travel mm : 4.50  
Tolerance mm : ± 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : 1250  
Rated speed rpm : 550  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550

Pressure hPa : 550  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 640  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

K07

Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 12.20  
Rated speed rpm : 915  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 474 021G  
Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0 413 404 107  
Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D924 T-E A2  
Power KW : 121.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.0  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

Speed

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.50  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.85  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1380  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 102.0

##### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1020  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1080  
Tolerance 1/min : ± 10

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1200

rack travel mm : 4.00  
Rated speed rpm : 1090

##### LOW IDLE

control lever  
position degree : 80.0

Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.10

##### Testing:

Rated speed rpm : 550  
rack travel mm : 4.50  
Tolerance mm : ± 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.00  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 13.00  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 13.00  
Tolerance mm : ± 0.05



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : 1380  
Rated speed rpm : 550  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550

Pressure hPa : 560  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 660  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1380  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1380  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1020  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.96  
Test oil : ISO 4113  
Combination No. : 0 403 474 021H  
Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0 413 404 107  
Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D924TI-E A2  
Power kW : 125.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 049  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900  
Rack travel in mm : 13.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 178.0  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 4.0  
Speed

cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.60  
Tolerance mm : ± 0.20

Del. quantity  
cm3/1000 strokes : 12.0  
cm3/1000 strokes : ± 2.0

Check tolerance  
cm3/1000S. : ± 4.5

Spreed  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1100

Del. quantity  
cm3/1000 strokes : 178.0  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

Spreed  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 96.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 915  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 980  
Tolerance 1/min : ± 10

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1175

rack travel mm : 4.00  
Rated speed rpm : 990

##### LOW IDLE

control lever  
position degree : 74.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.30

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.60  
Tolerance mm : ± 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : 1100  
Rated speed rpm : 500  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 575  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 725  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 915  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.96  
Test oil : ISO 4113

Combination No. : 9 400 087 479

Injection pump  
Pump designation : PES6P120A720LS7257  
: -10  
EP type number : 9 400 087 086

Governor  
Governor design. : RQV300...1050PA1029  
: -4  
Governor no. : 9 420 080 340

Cust. part No. : 0250742202

## Customer-spec. information

Customer : MBB  
Motor : OM 447 LA  
Power KW : 257.6

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.5

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1165  
guide sleeve  
travel mm : 9.45  
Tolerance mm :  $\pm$  0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1100  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 720  
rack travel mm : 2.65  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 0.80  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### BREAKAWAY

Rack travel in mm : 12.70  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

##### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 844 088  
Injection pump  
Pump designation : PES4A90D410RS2666  
EP type number : 0 410 894 029  
Governor  
Governor design. : RQV300...1400AB1065  
                  : -10L  
Governor no. : 0 420 212 203

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364  
Power kW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
  
Rack travel in mm : 10.95  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
  
cm<sup>3</sup>/1000 strokes : ± 0.5  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
  
Speed  
cm<sup>3</sup>/1000 strokes : 3.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5  
  
Rated speed rpm : 300  
  
Rack travel in mm : 8.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : + 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : + 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : + 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 2.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

CONTROL LEVER

control lever  
position degree : 115.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.90  
Rated speed rpm : 1445  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1560  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1700

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 8.70  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 10.20

Rated speed rpm : 610

TORQUE CONTROL

Dimension a mm : 1.00  
Rated speed rpm : 1400  
rack travel mm : 10.95  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm : + 0.15

Rated speed rpm : 900  
rack travel mm : 11.45  
Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.5  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 9.90  
Rated speed rpm : 1445  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
cm<sup>3</sup>/1000 strokes : ± 2.0

K20

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 844 089  
Injection pump  
Pump designation : PES4A90D410RS2666  
EP type number : 0 410 894 029  
Governor  
Governor design. : RQV300...1400AB1065  
: -10L  
Governor no. : 0 420 212 203  
Cust. part No. :

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM364  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

K21

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 10.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5  
Rated speed rpm : 300  
Rack travel in mm : 8.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : + 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : + 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : + 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : + 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 2.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 9.90  
Rated speed rpm : 1445  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1560  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1700

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 8.70  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 10.20

Rated speed rpm : 610

##### TORQUE CONTROL

Dimension a mm : 1.00  
Rated speed rpm : 1400  
rack travel mm : 10.95  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.95  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm : + 0.15

Rated speed rpm : 900

rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.90  
Rated speed rpm : 1445  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.80  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 844 096  
Injection pump  
Pump designation : PES4A95D410RS2809  
EP type number : 0 410 894 993  
Governor  
Governor design. : RQV300...1400AB1065  
                  : -23L  
Governor no. : 0 420 212 227

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 364  
Power KW : 65.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

K24

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 9.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 6.0  
Rated speed rpm : 300  
Rack travel in mm : 8.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : + 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : + 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : + 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : + 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 115.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 8.90  
Rated speed rpm : 1455  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1550  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1670

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 8.60  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 9.60

Rated speed rpm : 625

##### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 9.95  
Tolerance mm : + 0.05

Rated speed rpm : 400  
rack travel mm : 11.15  
Tolerance mm : + 0.05

Rated speed rpm : 630  
rack travel mm : 10.85  
Tolerance mm : + 0.15

Rated speed rpm : 925  
rack travel mm : 10.55



Tolerance mm :  $\pm$  0.15

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 630  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 925  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

#### BREAKAWAY

Rack travel in mm : 8.90  
Rated speed rpm : 1455  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 400 846 258  
  
Injection pump  
Pump designation : PES6A90D410RS2293Z  
EP type number : 0 410 896 037  
  
Governor  
Governor design. : RQV300...1425AB740L  
Governor no. : 0 420 212 037

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Inlet press. bar : 1.5

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 300

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1375  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

## RATED SPEED

rack travel mm : 4.00

rack travel mm : 4.00

## LOW IDLE

Testing:

rack travel mm : 2.00

Rated speed rpm : 100

---

START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

---

LOW IDLE

Rated speed rpm : 300

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.12.96  
Test oil : ISO 4113  
Combination No. : 0 400 846 443  
Injection pump  
Pump designation : PES6A90D410RS2596  
EP type number : 0 410 896 073  
Governor  
Governor design. : RQV300...1400AB1066  
: -1DL  
Governor no. : 0 420 214 251

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM352A  
Power KW : 126.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

L01

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 12.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5  
Speed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.5  
Rated speed rpm : 300  
Rack travel in mm : 9.00  
Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.05  
 Tolerance mm : + 0.25

Rated speed rpm : 1500  
 guide sleeve  
 travel mm : 8.55  
 Tolerance mm : + 0.05

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 2.55  
 Tolerance mm : + 0.25

Rated speed rpm : 750  
 guide sleeve  
 travel mm : 4.20  
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
 Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
 Aneroid pressure  
 hPa : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 74.5  
 cm<sup>3</sup>/1000 strokes : + 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.5  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.5

CONTROL LEVER

control lever  
 position degree : 114.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.40  
 Rated speed rpm : 1445  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1595  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1750

LOW IDLE

control lever  
 position degree : 76.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 9.00  
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 10.50

Rated speed rpm : 625

TORQUE CONTROL

Rated speed rpm : 1400  
 rack travel mm : 12.45  
 Tolerance mm : + 0.05

Rated speed rpm : 700  
 rack travel mm : 13.75  
 Tolerance mm : + 0.05

Rated speed rpm : 1000  
 rack travel mm : 13.40  
 Tolerance mm : + 0.10

Rated speed rpm : 1200

rack travel mm : 12.75  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.75  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 225  
rack travel mm : 12.70  
Tolerance mm : ± 0.10

Pressure hPa : 350  
rack travel mm : 13.25  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0

L03

cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 11.40  
Rated speed rpm : 1445  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.60  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.12.96  
Test oil : ISO 4113  
Combination No. : 0 400 846 476  
Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031  
Governor  
Governor design. : RQV300...1400AB1141L  
Governor no. : 0 420 212 148

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 352A  
Power KW : 123.6

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

L04

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance \*NW : + 0.75

## BASIC SETTING

Del. quantity  
cm3/1000 strokes : 75.5  
cm3/1000 strokes : + 0.5  
Check tolerance  
cm3/1000S. : + 2.5  
Spreed  
cm3/1000 strokes : 3.0  
Check tolerance  
cm3/1000S. : 4.5  
Rated speed rpm : 300  
Rack travel in mm : 7.70  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 12.0  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 5.0  
Spreed  
cm3/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000s. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1420  
Rack travel in mm : 17.70  
Tolerance mm : ± 1.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1375  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.5  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.5

---

CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.30  
Rated speed rpm : 1440  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1565  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1650

---

LOW IDLE

L05

control lever  
position degree : 15.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.70  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 9.20  
Rated speed rpm : 413

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1375  
Pressure hPa : 700  
rack travel mm : 11.35  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1375  
rack travel mm : 11.05  
Tolerance mm : ± 0.05

Rated speed rpm : 1375

Pressure hPa : 280  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500



Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1440  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.12.96  
Test oil : ISO 4113  
Combination No. : 0 400 846 477  
Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031  
Governor  
Governor design. : RQV300...1400AB1142L  
Governor no. : 0 420 212 149

Cust. part No. :

Customer spec. information  
Customer : MB-NFZ  
Motor : OM 352A  
Power KW : 123.6

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.5  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5  
Speed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.5  
Rated speed rpm : 300  
Rack travel in mm : 7.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1420  
Rack travel in mm : 17.70  
Tolerance mm : ± 1.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1375  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.5  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

---

CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.30  
Rated speed rpm : 1440  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1565  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1650

---

LOW IDLE

control lever  
position degree : 15.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.70  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 9.20

Rated speed rpm : 413

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1375  
Pressure hPa : 700  
rack travel mm : 11.35  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1375  
rack travel mm : 11.05  
Tolerance mm : ± 0.05

Rated speed rpm : 1375

Pressure hPa : 280  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.0  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

#### BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1440  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.50  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 846 584  
Injection pump  
Pump designation : PES6A95D410RS2797  
EP type number : 0 410 896 900  
Governor  
Governor design. : RQV300...1400AB1065  
: -20L  
Governor no. : 0 420 212 225

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power KW : 97.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.35  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 67.0

cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 8.10  
Tolerance mm : ± 0.10

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 12.0
cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.5
Spread	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.05
Tolerance mm	: + 0.25

Rated speed rpm	: 1500
guide sleeve	
travel mm	: 8.55
Tolerance mm	: + 0.05

Rated speed rpm	: 500
guide sleeve	
travel mm	: 2.55
Tolerance mm	: + 0.25

Rated speed rpm	: 750
guide sleeve	
travel mm	: 4.20
Tolerance mm	: + 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1450
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Rack travel in mm	: 16.50
Tolerance mm	: + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 67.0
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 3.0
Spread	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 6.0

##### CONTROL LEVER

control lever	
position degree	: 113.0
tolerance degree	: + 4.0

##### RATED SPEED

rack travel mm	: 8.30
Rated speed rpm	: 1455
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1535
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1670

##### LOW IDLE

control lever	
position degree	: 74.0
tolerance degree	: + 4.0

##### Testing:

Rated speed rpm	: 300
rack travel mm	: 8.10
Tolerance mm	: + 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 9.50
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Rated speed rpm	: 515
-----------------	-------

##### TORQUE CONTROL

Rated speed rpm	: 1400
rack travel mm	: 9.35
Tolerance mm	: + 0.05

Rated speed rpm	: 500
rack travel mm	: 10.45
Tolerance mm	: + 0.15

Rated speed rpm	: 900
rack travel mm	: 9.65
Tolerance mm	: + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.5  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 8.30  
Rated speed rpm : 1455  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.90  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113  
  
Combination No. : 0 400 074 876  
  
Injection pump  
Pump designation : PES4M60C320RS185  
EP type number : 0 410 064 006  
  
Governor  
Governor design. : RSF360/1900M84  
Governor no. : 0 420 021 287

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601 D23 LA  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 17.00  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

cm<sup>3</sup>/1000 strokes : ± 0.7

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.7

Speed  
cm<sup>3</sup>/1000 strokes : 3.0



Check tolerance  
cm3/1000S. : 3.5

Rated speed rpm : 360

Rack travel in mm : 5.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 6.5  
cm3/1000 strokes :  $\pm$  0.5

Spread  
cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 1850

Del. quantity  
cm3/1000 strokes : 59.5  
cm3/1000 strokes :  $\pm$  0.7

Check tolerance  
cm3/1000S. :  $\pm$  1.7

Spread  
cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 3.5

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2150  
rack travel mm : 6.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 2600  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

##### LOW IDLE

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

##### Setting point w/out bumper spring

Rated speed rpm : 360  
rack travel mm : 5.90

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 200  
rack travel mm : 12.20

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 5.90  
Rated speed rpm : 360

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1500  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1900  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 900  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

## SETTING

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1600  
 rack travel mm : -0.25  
 Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 rack travel mm : -2.65  
 Tolerance mm :  $\pm$  0.10

Ref. pressure  
 ALDA / ADA hPa : 750  
 rack travel mm : -4.30  
 Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 58.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1900  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 55.5  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.2  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7

Spreed  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 64.3  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## HIGH IDLE

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 2150  
 rack travel mm : 6.60  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 21.4  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.2  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : > 20.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 54.3  
 cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed

cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.5

---

#### LOW IDLE

Rated speed rpm : 360  
rack travel mm : 5.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Speed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Rated speed rpm : 360  
  
Rack travel in mm : 13.70  
Tolerance mm :  $\pm$  0.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.8  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5  
  
Current A : 1.80  
  
Rated speed rpm : 2600  
  
Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.50  
  
Current short-  
duration A : 3.00  
  
Starting test  
  
Rated speed rpm : 100  
  
Current A : 1.80

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113  
Combination No. : 0 400 074 883  
Injection pump  
Pump designation : PES4M60C320RS185  
EP type number : 0 410 064 006  
Governor  
Governor design. : RSF375/1900M78  
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601 D23 LA  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 17.00  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

cm<sup>3</sup>/1000 strokes : ± 0.7

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.7

Speed  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : 3.5

Rated speed rpm : 375  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 6.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 1850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.7  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

##### RATED SPEED

control lever  
position degree : 50.0  
Rated speed rpm : 2200  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20  
Rated speed rpm : 2600  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900  
CRT mm max. : 1.95

##### LOW IDLE

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring  
Rated speed rpm : 375  
rack travel mm : 6.00

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 250  
rack travel mm :  $>$  9.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00  
Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1500  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1900  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 1600  
rack travel mm : -0.25

Tolerance mm : ± 0.20

#### MEASUREMENT

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 1100  
rack travel mm : -2.65  
Tolerance mm : ± 0.10

Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -4.30  
Tolerance mm : ± 0.20

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1900  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.5  
cm<sup>3</sup>/1000 strokes : ± 1.2  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.2  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
cm<sup>3</sup>/1000 strokes : ± 0.7  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.7  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
cm<sup>3</sup>/1000 strokes : ± 0.7  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.7  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 3.5

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 2200  
rack travel mm : 8.30  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
cm<sup>3</sup>/1000 strokes : ± 2.2  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.2  
Spreed  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 3.5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : > 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.3  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.5

#### LOW IDLE

Rated speed rpm : 375  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000s. : 1.5

---

control lever  
position degree : > 42.00

control lever  
position degree : < 39.50

---

SETTING PNEUMATIC FAST IDLE (PLA)  
(PLA) POSITION

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

Rated speed rpm : 425

Rack travel in mm : 8.40  
Tolerance mm :  $\pm$  0.80

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Vacuum hPa : 450.0

---

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.96  
Test oil : ISO 4113

Combination No. : 0 401 848 708

Injection pump  
Pump designation : PE8P110A320LS3802  
: -10  
EP type number : 0 411 818 710

Governor  
Governor design. : RQ300/1150PA187-3  
Governor no. : 0 421 801 133

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM422  
Power KW : 206.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.75  
Tolerance mm : ± 0.05



<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	114.0
<hr/>	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 3.5
<hr/>	
Speed	
cm <sup>3</sup> /1000 strokes :	4.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	7.0
<hr/>	
Rated speed rpm :	300
<hr/>	
Rack travel in mm :	8.10
Tolerance mm :	+ 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes :	18.0
cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 5.5
Speed	
cm <sup>3</sup> /1000 strokes :	4.0
Check tolerance	
cm <sup>3</sup> /1000S. :	7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	300
guide sleeve	
travel mm :	2.20
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	1250
guide sleeve	
travel mm :	9.80
Tolerance mm :	+ 0.50
<hr/>	
Rated speed rpm :	650
guide sleeve	
travel mm :	7.00
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	1200
guide sleeve	
travel mm :	7.50
Tolerance mm :	+ 0.20

GUIDE SLEEVE POSITION

Rated speed rpm :	650
Rack travel in mm :	13.50
Tolerance mm :	+ 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	750
Aneroid pressure	
hPa :	-
Del. quantity	
cm <sup>3</sup> /1000 strokes :	114.0
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 3.5
Speed	
cm <sup>3</sup> /1000 strokes :	4.0
Check tolerance	
cm <sup>3</sup> /1000S. :	7.0

CONTROL LEVER

control lever	
position degree :	43.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.70
Rated speed rpm :	1203
Tolerance 1/min :	+ 8
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1255
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.75
Tolerance mm :	+ 0.75
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	18.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	300
rack travel mm :	8.10
Tolerance mm :	+ 0.10
<hr/>	
rack travel mm :	2.00
Rated speed rpm :	440

Tolerance 1/min : + 20  
Rated speed rpm : 100  
CRT mm min. : > 10.20  
Rated speed rpm : 550  
CRT mm max. : < 1.80

---

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 11.75  
Tolerance mm : + 0.05  
  
Rated speed rpm : 1150  
rack travel mm : 11.75  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

#### BREAKAWAY

Rack travel in mm : 10.70  
Rated speed rpm : 1203  
Tolerance 1/min : + 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.5  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.96  
Test oil : ISO 4113

Combination No. : 0 401 848 761

Injection pump  
Pump designation : PE8P120A320LS3807  
: -10  
EP type number : 0 411 828 713

Governor  
Governor design. : RQ300/1150PA546-9  
Governor no. : 0 421 801 375

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM422 LA  
Power KW : 276.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0

---

cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 5.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.70  
Tolerance mm : ± 0.10

Rated speed rpm : 1210  
guide sleeve  
travel mm : 6.65  
Tolerance mm : ± 0.15

Rated speed rpm : 600  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1150  
guide sleeve  
travel mm : 6.25  
Tolerance mm : ± 0.05

Rated speed rpm : 1270  
guide sleeve  
travel mm : 8.75

Tolerance mm : ± 0.25

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1203  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1270  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1400

---

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300

rack travel mm	:	5.10
Tolerance mm	:	+ 0.10
rack travel mm	:	2.00
Rated speed rpm	:	390
Tolerance 1/min	:	+ 25
Rated speed rpm	:	200
CRT mm min.	:	> 7.10

---

#### TORQUE CONTROL

Dimension a mm	:	0.20
Rated speed rpm	:	1150
rack travel mm	:	11.55
Tolerance mm	:	+ 0.05
Rated speed rpm	:	750
rack travel mm	:	11.90
Tolerance mm	:	+ 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	500
Pressure hPa	:	-

#### MEASUREMENT

Pressure hPa	:	410
Rated speed rpm	:	500
rack travel mm	:	0.35
Tolerance mm	:	+ 0.05

Rated speed rpm	:	500
Pressure hPa	:	490
rack travel mm	:	1.05
Tolerance mm	:	+ 0.15

---

#### START CUT-OUT

Rated speed rpm	:	> 100
Rated speed rpm	:	< 220
Check speed 1/min	:	> 80
Check speed 1/min	:	< 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	700
Rated speed rpm	:	750
Del. quantity cm <sup>3</sup> /1000 strokes	:	188.5
cm <sup>3</sup> /1000 strokes	:	+ 1.5
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.5
Speed cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	12.0

Aneroid pressure hPa	:	-
Rated speed rpm	:	500
Del. quantity cm <sup>3</sup> /1000 strokes	:	138.0
cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
Speed cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	12.0

---

#### BREAKAWAY

Rack travel in mm	:	10.50
Rated speed rpm	:	1203
Tolerance 1/min	:	+ 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity cm <sup>3</sup> /1000 strokes	:	150.0
cm <sup>3</sup> /1000 strokes	:	+ 10.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 14.0

---

#### LOW IDLE

Rated speed rpm	:	300
Del. quantity cm <sup>3</sup> /1000 strokes	:	16.0
cm <sup>3</sup> /1000 strokes	:	+ 4.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 7.0
Speed cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113

Combination No. : 0 401 849 757

Injection pump  
Pump designation : PE10P120A520/4LS3863  
EP type number : 0 411 897 711

Governor  
Governor design. : RQ300/900PA1230  
Governor no. : 0 421 801 792

Cust. part No. :

Customer-spec. information  
Customer : DAEWOO  
Motor : D2840LE

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : + 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.05  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 10- 9- 4- 1- 8  
: - 7- 6- 3- 5  
: - 2

Phasing : 0-45-72-117-144  
: -189-216-261-288  
: -333  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

## Start of delivery mark

Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.90  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.44  
Tolerance mm : + 0.10

Rated speed rpm : 932  
guide sleeve  
travel mm : 6.37  
Tolerance mm : + 0.10

Rated speed rpm : 880  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 433  
guide sleeve  
travel mm : 4.94  
Tolerance mm : + 0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 32.0  
tolerance degree : + 4.0

control lever  
position degree : 94.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 900  
Tolerance 1/min : + 5

rack travel mm : 6.00  
Rated speed rpm : 950  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1100



---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

control lever  
position degree : 12.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 9.40

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.90  
Tolerance mm : + 0.05

Rated speed rpm : 650  
rack travel mm : 12.90  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.0  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 900  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.12.96  
Test oil : ISO 4113

Combination No. : 0 402 646 626

Injection pump  
Pump designation : PE6P120A320RS7299  
EP type number : 0 412 626 885

Governor  
Governor design. : RQV275...1000PA1076K  
Governor no. : 0 421 815 357

Cust. part No. : 1280160

Customer-spec. information  
Customer : DAF  
Motor : WS 268 M  
Power KW : 268.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0

cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Speed  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.80  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 17.0

cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Speed  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.14  
Tolerance mm : + 0.15

Rated speed rpm : 1045  
guide sleeve  
travel mm : 9.82  
Tolerance mm : + 0.20

Rated speed rpm : 689  
guide sleeve  
travel mm : 6.43  
Tolerance mm : + 0.25

Rated speed rpm : 284  
guide sleeve  
travel mm : 2.27  
Tolerance mm : + 0.25

Rated speed rpm : 334  
guide sleeve  
travel mm : 3.17  
Tolerance mm : + 0.25

Rated speed rpm : 390

guide sleeve  
travel mm : 3.79  
Tolerance mm : + 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 12.60  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 250.0

cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Speed  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.55  
Rated speed rpm : 1042  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

---

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 370  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  7.50

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 720

M05

rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 360  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 268.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.55  
Rated speed rpm : 1042  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.12.96  
Test oil : ISO 4113

Combination No. : 0 402 646 671

Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956

Governor  
Governor design. : RQV275...1150PA1297K  
Governor no. : 0 421 815 524

Cust. part No. : 1316184/1

Customer-spec. information  
Customer : DAF  
Motor : PF 205 M  
Power KW : 205.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 12.10  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	207.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0
Rated speed rpm	:	275
Rack travel in mm	:	4.90
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	16.0
cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 6.0
Spreed cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	275
guide sleeve travel mm	:	1.71
Tolerance mm	:	± 0.20
Rated speed rpm	:	1206
guide sleeve travel mm	:	10.12
Tolerance mm	:	± 0.15
Rated speed rpm	:	813
guide sleeve travel mm	:	6.81
Tolerance mm	:	± 0.25
Rated speed rpm	:	450
guide sleeve travel mm	:	3.85
Tolerance mm	:	± 0.25
Rated speed rpm	:	1480
guide sleeve travel mm	:	13.50

M08

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1329
Rack travel in mm	:	11.10
Tolerance mm	:	± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1130
Aneroid pressure hPa	:	1500
Del. quantity cm <sup>3</sup> /1000 strokes	:	207.0
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	118.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	11.10
Rated speed rpm	:	1195
Tolerance 1/min	:	± 5
rack travel mm	:	4.00
Rated speed rpm	:	1300
Tolerance 1/min	:	± 15
rack travel mm	:	0.70
Tolerance mm	:	± 0.70
Rated speed rpm	:	1400

LOW IDLE

control lever position degree	:	71.0
tolerance degree	:	± 4.0

Testing:

Rated speed rpm	:	275
-----------------	---	-----

rack travel mm : 4.90  
 Tolerance mm : + 0.10  
 Rated speed rpm : 175  
 CRT mm min. : > 7.50  
 Rated speed rpm : 350

#### TORQUE CONTROL

Rated speed rpm : 1130  
 rack travel mm : 12.10  
 Tolerance mm : + 0.05  
 Rated speed rpm : 1000  
 rack travel mm : 12.15  
 Tolerance mm : + 0.10  
 Rated speed rpm : 850  
 rack travel mm : 12.35  
 Tolerance mm : + 0.10  
 Rated speed rpm : 800  
 rack travel mm : 12.25  
 Tolerance mm : + 0.10  
 Rated speed rpm : 650  
 rack travel mm : 11.50  
 Tolerance mm : + 0.10  
 Rated speed rpm : 500  
 rack travel mm : 10.85  
 Tolerance mm : + 0.10  
 Rated speed rpm : 1150  
 rack travel mm : 12.10  
 Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 875  
 Pressure hPa : 1500  
 rack travel mm : 12.35  
 Tolerance mm : + 0.10

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 875  
 rack travel mm : 8.00  
 Tolerance mm : + 0.10  
 Rated speed rpm : 875

Pressure hPa : 420  
 rack travel mm : 11.35  
 Tolerance mm : + 0.05

Pressure hPa : 150  
 rack travel mm : 9.20  
 Tolerance mm : + 0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 850  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 231.0  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : + 5.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0  
 Aneroid pressure  
 hPa : -  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 138.0  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : + 4.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

#### BREAKAWAY

Rack travel in mm : 11.10  
 Rated speed rpm : 1195  
 Tolerance 1/min : + 5

#### LOW IDLE

Rated speed rpm : 275  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 16.0  
 cm<sup>3</sup>/1000 strokes : + 3.0



Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.12.96  
Test oil : ISO 4113

Combination No. : 0 402 646 672

Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956

Governor  
Governor design. : RQV275...1150PA1298K  
Governor no. : 0 421 815 525

Cust. part No. : 1316185/1

Customer-spec. information  
Customer : DAF  
Motor : PF 183 M  
Power KW : 183.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 10.80  
Tolerance mm : ± 0.10

<hr/>	
Del. quantity	
cm3/1000 strokes :	184.0
<hr/>	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S. :	+ 4.0
<hr/>	
Spreed	
cm3/1000 strokes :	5.0
<hr/>	
Check tolerance	
cm3/1000S. :	9.0
<hr/>	
Rated speed rpm :	275
<hr/>	
Rack travel in mm :	4.90
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	16.0
cm3/1000 strokes :	+ 3.0
Check tolerance	
cm3/1000S. :	+ 6.0
Spreed	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	1.71
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1200
guide sleeve	
travel mm :	10.06
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	811
guide sleeve	
travel mm :	6.79
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	450
guide sleeve	
travel mm :	3.85
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1480
guide sleeve	
travel mm :	13.50

M12

Tolerance mm :	+ 0.50
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GUIDE SLEEVE POSITION

Rated speed rpm :	1343
Rack travel in mm :	9.80
Tolerance mm :	+ 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1130
Aneroid pressure	
hPa :	1500
Del. quantity	
cm3/1000 strokes :	184.0
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	117.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	9.80
Rated speed rpm :	1190
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1285
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.70
Tolerance mm :	+ 0.70
Rated speed rpm :	1450

LOW IDLE

control lever	
position degree :	72.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	275
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rack travel mm : 4.90  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 175  
 CRT mm min. :  $>$  7.50  
 Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 1130  
 rack travel mm : 10.80  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 1000  
 rack travel mm : 10.90  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 850  
 rack travel mm : 11.05  
 Tolerance mm :  $\pm$  0.05  
 Rated speed rpm : 800  
 rack travel mm : 10.90  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 650  
 rack travel mm : 10.10  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 500  
 rack travel mm : 9.35  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 1150  
 rack travel mm : 10.80  
 Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 875  
 Pressure hPa : 1500  
 rack travel mm : 11.10  
 Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 875  
 rack travel mm : 8.00  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 875

Pressure hPa : 350  
 rack travel mm : 10.20  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 130  
 rack travel mm : 8.40  
 Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 850  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 206.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 138.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 9.80  
 Rated speed rpm : 1190  
 Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 16.0  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.12.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 780  
  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
  
Governor  
Governor design. : RQV300...1050PA1078  
: -2K  
Governor no. : 0 421 815 548  
  
Cust. part No. : 988 04 47

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI-EA3  
Power KW : 420.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.55  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.11  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1182

Rack travel in mm : 12.48  
Tolerance mm :  $\pm$  1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 11.65  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1255

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

CRT mm min. : > 7.10

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 8.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050

Pressure hPa : 1050  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 700  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600

M17

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 11.65  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0



Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.12.96  
Test oil : ISO 4113

Combination No. : 0 402 648 780A

Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877

Governor  
Governor design. : RQV300...1050PA1078  
: -2K  
Governor no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI-EA3  
Power KW : 420.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.55  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.11  
Tolerance mm : ± 0.20

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm : ± 0.15

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.17  
Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : ± 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1182

Rack travel in mm : 12.48  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.65  
Rated speed rpm : 1120  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1255

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.55  
Tolerance mm : ± 0.10

Rated speed rpm : 300

CRT mm min. : > 7.10

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 8.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050

Pressure hPa : 1050  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 700  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600

M21

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 11.65  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.96  
Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860

Governor  
Governor design. : RQV350...1050PA1318  
Governor no. : 0 421 814 185

Cust. part No. : 0270746302

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 15.30  
Tolerance mm : ± 0.10

Del. quantity cm <sup>3</sup> /1000 strokes	: 272.0
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
Rated speed rpm	: 350

Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve travel mm	: 1.48
Tolerance mm	: ± 0.20

Rated speed rpm	: 1106
guide sleeve travel mm	: 8.02
Tolerance mm	: ± 0.15

Rated speed rpm	: 900
guide sleeve travel mm	: 5.69
Tolerance mm	: ± 0.25

Rated speed rpm	: 580
guide sleeve travel mm	: 3.62
Tolerance mm	: ± 0.25

Rated speed rpm	: 1204
guide sleeve travel mm	: 10.00

Tolerance mm	: ± 0.25
Rated speed rpm	: 1300
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1174
Rack travel in mm	: 11.00
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1800
Del. quantity cm <sup>3</sup> /1000 strokes	: 272.0
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1195
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever position degree	: 70.0
----------------------------------	--------

tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  7.00

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 4.65  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 180  
rack travel mm : 0.20  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800

M25

Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 14.30  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.12.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 967C  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
Governor  
Governor design. : RQV300...1050PA1078  
                  : -1K  
Governor no. : 0 421 815 361  
Cust. part No. : 9275447

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI-EA3  
Power KW : 420.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 8- 7- 2- 6  
                  : - 3- 5- 4  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 12.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.55  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

M27

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 11.65  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1210  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1255

---

LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

Rated speed rpm : 450

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 8.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050

Pressure hPa : 1050  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 700  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 11.65  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113

Combination No. : 0 402 698 033

Injection pump  
Pump designation : PE8H120/320LS15  
EP type number : 0 412 628 004

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 369

Cust. part No. : 0250745602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 442 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 750  
Uact V : 2.800  
Prestroke solenoid  
Stroke mm : 7.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 342.0  
cm<sup>3</sup>/1000 strokes : +/- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 329.0  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

Rated speed rpm : 550  
Uact V : 2.700  
Prestroke solenoid  
Stroke mm : 9.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 349.0  
cm<sup>3</sup>/1000 strokes : +/- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Rated speed rpm : 630  
Uact V : 2.000

Prestroke solenoid  
Stroke mm : 5.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.0

cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500

Tolerance Volt : ± 0.060

Check tolerance  
Volt : ± 0.060

Prestroke solenoid  
Stroke mm : 8.00

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0

cm<sup>3</sup>/1000 strokes : ± 3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 1.900

Prestroke solenoid  
Stroke mm : 10.00

Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0

cm<sup>3</sup>/1000 strokes : ± 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.12.96  
Test oil : ISO 4113

Combination No. : 0 402 746 601

Injection pump  
Pump designation : PES6P120A72ORS7389  
EP type number : 0 412 726 944

Governor  
Governor design. : RQ275/1050PA1021-4  
Governor no. : 0 421 801 795

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41E.711

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

---

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

N06

rack travel mm : 9.90  
Rated speed rpm : 1103  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 275  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 356  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  6.10

##### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 900  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 220  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 350  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.5  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.90  
Rated speed rpm : 1103  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113

Combination No. : 0 402 746 883

Injection pump  
Pump designation : PES6P110A320RS7198  
EP type number : 0 412 716 802

Governor  
Governor design. : RQV275...1250PA942K  
Governor no. : 0 421 815 234

Cust. part No. : CCEP 5097A

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 06.02.26 L  
Power KW : 132.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.65  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 14.65  
Tolerance mm : ± 0.05

---

#### BASIC SETTING

Rated speed rpm : 1250

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

---

cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 275

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.5

cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

Rated speed rpm : 1385

Rack travel in mm : 13.60  
Tolerance mm : ± 1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Speed  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

#### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1320  
Tolerance 1/min : ± 5

rack travel mm : -10.65  
Rated speed rpm : 1490  
Tolerance 1/min : ± 15

rack travel mm : -14.15  
Tolerance mm : ± 0.55  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 200

CRT mm max. : < -8.90

Rated speed rpm : 415

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750  
rack travel mm : -0.80  
Tolerance mm : ± 0.10

Rated speed rpm : 750  
rack travel mm : -5.60  
Tolerance mm : ± 0.10

Rated speed rpm : 750  
rack travel mm : -8.00  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : -3.40  
Tolerance mm : + 0.20

Rated speed rpm : 1250

Pressure hPa : 220  
rack travel mm : -2.60  
Tolerance mm : + 0.20

Pressure hPa : 360  
rack travel mm : -1.75  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 150  
Rated speed rpm : < 200

Check  
speed 1/min : > 130  
Check  
speed 1/min : < 220

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.0  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0  
Spreed

cm<sup>3</sup>/1000 strokes : 8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1320  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.5  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.96  
Test oil : ISO 4113

Combination No. : 0 402 746 894

Injection pump  
Pump designation : PES6P110A320RS7208  
EP type number : 0 412 716 803

Governor  
Governor design. : RQV275...1175PA942  
: -1K  
Governor no. : 0 421 815 244

Cust. part No. : CCEP 5100A

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR060226 M  
Power KW : 210.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

---

#### BASIC SETTING

Rated speed rpm : 1175

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0

---

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 275

Rack travel in mm : -8.80  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1256  
guide sleeve  
travel mm : 9.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 888  
guide sleeve  
travel mm : 6.57  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 2.39

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 440  
guide sleeve  
travel mm : 3.01  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 13.00  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

rack travel mm : -10.05  
Rated speed rpm : 1430  
Tolerance 1/min :  $\pm$  15

rack travel mm : -13.55



Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 60.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : -8.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 200

CRT mm max. :  $<$  -8.20

Rated speed rpm : 415

---

#### TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 700  
rack travel mm : -0.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : -6.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : -0.35  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1175  
Pressure hPa : 1000

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1175  
rack travel mm : -3.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1175

Pressure hPa : 240  
rack travel mm : -2.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 520  
rack travel mm : -1.45  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  150  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $>$  130  
Check  
speed 1/min :  $<$  220

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.08.95  
Test oil : ISO 4113

Combination No. : 0 402 795 203

Injection pump  
Pump designation : PES5H120/720/3LS1004  
EP type number : 0 412 725 203

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7476

## Customer-spec. information

Customer : MAN  
Motor : D 2865 LF 09  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Start of delivery blocking

Tolerance : ± 0.10

Barrel no. : 5

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
 $n=600 \text{ min}^{-1}$ ,  $U_{act} = 2.5 \text{ V}$

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed  $\text{min}^{-1}$ : 0

Setting point  
(P, R and H pump)

$U_{act} \text{ V}$  : 3.100  
CRT mm : 13.00  
Tolerance mm :  $\pm 0.05$   
Check  
tolerance mm :  $\pm 0.10$

Check value  
(P, R and H pump)

$U_{act} \text{ V}$  : 1.700  
CRT mm : 6.15  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.30$

Setting point  
(M pump)

$U_{act} \text{ V}$  : 3.100  
CRT mm : 12.50  
Tolerance mm :  $\pm 0.05$   
Check  
tolerance mm :  $\pm 0.10$

Check value  
(M pump)

$U_{act} \text{ V}$  : 1.700  
CRT mm : 5.50  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.30$

Stop position

$U_{act} \text{ V}$  : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.35$

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed  $\text{min}^{-1}$ : 60  
Amplitude V : 1.4  
Tolerance V :  $\pm 0.6$   
Check  
tolerance V :  $\pm 1.20$

Engine speed  $\text{min}^{-1}$ : 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 750  
 $U_{act} \text{ V}$  : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
 $\text{cm}^3/1000 \text{ strokes}$  : 332.0  
 $\text{cm}^3/1000 \text{ strokes}$  :  $\pm 1.0$   
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  :  $\pm 4.0$   
Spreed  
 $\text{cm}^3/1000 \text{ strokes}$  : 5.0  
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  : 9.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
 $U_{act} \text{ V}$  : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
 $\text{cm}^3/1000 \text{ strokes}$  : 74.0  
 $\text{cm}^3/1000 \text{ strokes}$  :  $\pm 4.0$   
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  :  $\pm 8.0$   
Spreed  
 $\text{cm}^3/1000 \text{ strokes}$  : 4.0  
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  : 8.0  
  
Rated speed rpm : 1000  
 $U_{act} \text{ V}$  : 3.290  
Prestroke solenoid  
Stroke mm : 8.00

Del. quantity  
cm<sup>3</sup>/1000 strokes : 312.0  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 306.0  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : + 0.060  
Check tolerance  
Volt : + 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 182.0  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.08.95  
Test oil : ISO 4113  
Combination No. : 0 402 796 202  
Injection pump  
Pump designation : PES6H120/720/3LS1005  
EP type number : 0 412 726 202

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7477

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LF 16  
Power KW : 294.0

## TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

Tolerance : ± 0.10

Barrel no. : 6

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
 $n=600 \text{ min}^{-1}$ ,  $U_{act} = 2.5 \text{ V}$

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed  $\text{min}^{-1}$ : 0

Setting point  
(P, R and H pump)

$U_{act} \text{ V}$  : 3.100  
CRT mm : 13.00  
Tolerance mm :  $\pm 0.05$   
Check  
tolerance mm :  $\pm 0.10$

Check value  
(P, R and H pump)

$U_{act} \text{ V}$  : 1.700  
CRT mm : 6.15  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.30$

Setting point  
(M pump)

$U_{act} \text{ V}$  : 3.100  
CRT mm : 12.50  
Tolerance mm :  $\pm 0.05$   
Check  
tolerance mm :  $\pm 0.10$

Check value  
(M pump)

$U_{act} \text{ V}$  : 1.700  
CRT mm : 5.50  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.30$

Stop position

$U_{act} \text{ V}$  : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.35$

### ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed  $\text{min}^{-1}$ : 60  
 $U_{act} \text{ V}$  : 1.4  
Tolerance  $U_{act}$  :  $\pm 0.6$   
Check  
tolerance  $U_{act}$  :  $\pm 1.20$

Engine speed  $\text{min}^{-1}$ : 600  
Difference  
 $U_{act}$  to  
 $U_{act} \text{ V}$  : max. 1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 750  
 $U_{act} \text{ V}$  : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
 $\text{cm}^3/1000 \text{ strokes}$  : 332.0  
 $\text{cm}^3/1000 \text{ strokes}$  :  $\pm 1.0$   
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  :  $\pm 4.0$   
Speed  
 $\text{cm}^3/1000 \text{ strokes}$  : 5.0  
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  : 9.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
 $U_{act} \text{ V}$  : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
 $\text{cm}^3/1000 \text{ strokes}$  : 74.0  
 $\text{cm}^3/1000 \text{ strokes}$  :  $\pm 4.0$   
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  :  $\pm 8.0$   
Speed  
 $\text{cm}^3/1000 \text{ strokes}$  : 4.0  
Check tolerance  
 $\text{cm}^3/1000 \text{ S.}$  : 8.0  
Rated speed rpm : 1000  
 $U_{act} \text{ V}$  : 3.290  
Prestroke solenoid  
Stroke mm : 8.00

Del. quantity  
cm<sup>3</sup>/1000 strokes : 312.0  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 306.0  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 182.0  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 796 203  
Injection pump  
Pump designation : PES6H120/720/3LS1006  
EP type number : 0 412 726 203  
Governor  
Governor design. : RE33  
Governor no. : 0 421 890 365

Cust. part No. : 51.111103-7479

## Customer-spec. information

Customer : MAN  
Motor : D 2866 LUH 21  
Power KW : 257.0

## TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

N22

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60

Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

#### (C) INJECTION PUMP WITH POSITIONER

##### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 332.0  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Uact V : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
cm<sup>3</sup>/1000 strokes : +/- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 8.0  
Spreed  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 317.0  
cm<sup>3</sup>/1000 strokes : +/- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 307.0  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : + 0.060  
Check tolerance  
Volt : + 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
cm<sup>3</sup>/1000 strokes : + 3.0  
Speed  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

End of test specification sheet

Note remarks

Cust. part No. : 0250744902

Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 155.0

Outside diameter : 8.0

N25

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar :  $\pm$  1.0

```
Prestroke mm      :      4.55
Tolerance mm      :  +  0.05
Check
tolerance mm      :  +  0.10
```

Rack travel in mm : 20.00  
Tolerance mm :  $\pm 1.00$

Firing order : 1- 5- 3- 6- 2-  
: 4

```
Phasing      : 0-60-120-180-240
              : -300
Tolerance    : + 0.50
Check
tolerance *NW : + 0.75
```

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000s. :  $\pm$  3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 4.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.92  
Tolerance mm : ± 0.25

Rated speed rpm : 1355  
guide sleeve  
travel mm : 9.32  
Tolerance mm : ± 0.25

Rated speed rpm : 1078  
guide sleeve  
travel mm : 7.06  
Tolerance mm : ± 0.25

Rated speed rpm : 514  
guide sleeve  
travel mm : 2.14  
Tolerance mm : ± 0.25

Rated speed rpm : 564  
guide sleeve  
travel mm : 2.60  
Tolerance mm : ± 0.25

Rated speed rpm : 740  
guide sleeve  
travel mm : 3.93  
Tolerance mm : ± 0.25

Rated speed rpm : 1720  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 10.00  
Tolerance mm : ± 2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1485  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 4.20

Tolerance mm : + 0.10  
Rated speed rpm : 200  
CRT mm min. : > 5.00

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm : + 0.05  
  
Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm : + 0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : + 0.05

Rated speed rpm : 500  
  
Pressure hPa : 800  
rack travel mm : 4.30  
Tolerance mm : + 0.10

Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm : + 0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

##### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

---

##### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

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End of test specification sheet